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Category II High Temperature Evaluation of a T-38 Aircraft

Clair K. Sandstrom
Billy L. White

FLIGHT TEST DIVISION
FLIGHT AND ENGINEERING TEST GROUP

MAY 1961

61-3-5
NOX



AERONAUTICAL SYSTEMS DIVISION

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May 1961

Systems Project Number 420L

Aeronautical Systems Division
Air Force Systems Command
United States Air Force
Wright-Patterson Air Force Base, Ohio

FOREWORD

This report on the T-38A High Temperature Evaluation was prepared by Clair K. Sandstrom and Billy L. White of the Flight Test Engineering Branch, Flight and Engineering Test Group, Wright Air Development Division (WADD), at the request of the Directorate of Systems Management, Airborne Support Systems Division, T-38 Support Systems Project Office under Systems Project Number 420L. Mr. Sandstrom was project engineer; Capt Russell L. Rogers, Air Force Flight Test Center, was the project pilot.

The high temperature tests were conducted at the El Centro Naval Auxiliary Landing Field (NALF), California, from 19 August through 5 September 1960.

The Flight and Engineering Test Group, WADD, directed the tests, provided the engineering and instrumentation personnel, and was responsible for final data reduction and analysis, and publication of the test results. Data for preliminary instrument flight procedures for the Flight Manual were also gathered during the desert tests and will be published in a separate report by the Flight Test Engineering Branch. Operational information influenced by desert climates is presented in paragraph 25 of "Recommendations" as proposed additions to Section IX of the applicable flight handbook, T.O. T-38A-1.

The Air Force Flight Test Center (AFFTC), Edwards Air Force Base, California, provided the project pilot, supply support, and maintenance personnel. The El Centro NALF provided limited base support.

Technical representatives of Norair Division, Northrop Aircraft Corporation, Hawthorne, California, and General Electric Corporation participated in the test. The T-38A "Talon" (USAF S/N 59-1590) aircraft was designed and manufactured by Norair; instrumentation pick-ups and leads were installed by Northrop during production in accordance with military specification MIL-I-5289(ASG) as amended by WADD. The aircraft was powered by two YJ85-GE-5 eight-stage axial-flow turbojet engines. Additional instrumentation and the necessary recording equipment were installed in the aircraft at Edwards Air Force Base, California, prior to the El Centro tests, by WADD instrumentation personnel, with shop support furnished by AFFTC.

ABSTRACT

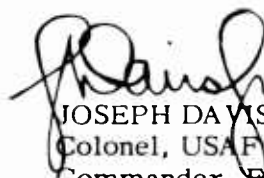
The T-38A aircraft was subjected to flight and static tests at ambient temperatures up to 115°F at the El Centro Naval Auxiliary Landing Field, California. No serious deficiencies were encountered. The cockpit temperatures were unsatisfactory; however, the refrigeration package in the test aircraft was not a production unit and is to be replaced by a more efficient unit in the production aircraft.

Tests proved maintenance of the aircraft in a desert climate presents no unusual problem, but strict adherence to operational procedures, as affected by high temperatures, is necessary.

PUBLICATION REVIEW

This report has been reviewed and approved for publication.

FOR THE COMMANDER:



JOSEPH DAVIS, JR.

Colonel, USAF

Commander, Flight and Engineering
Test Group

REVIEW AND APPROVAL OF WADD TECHNICAL NOTE 60-283

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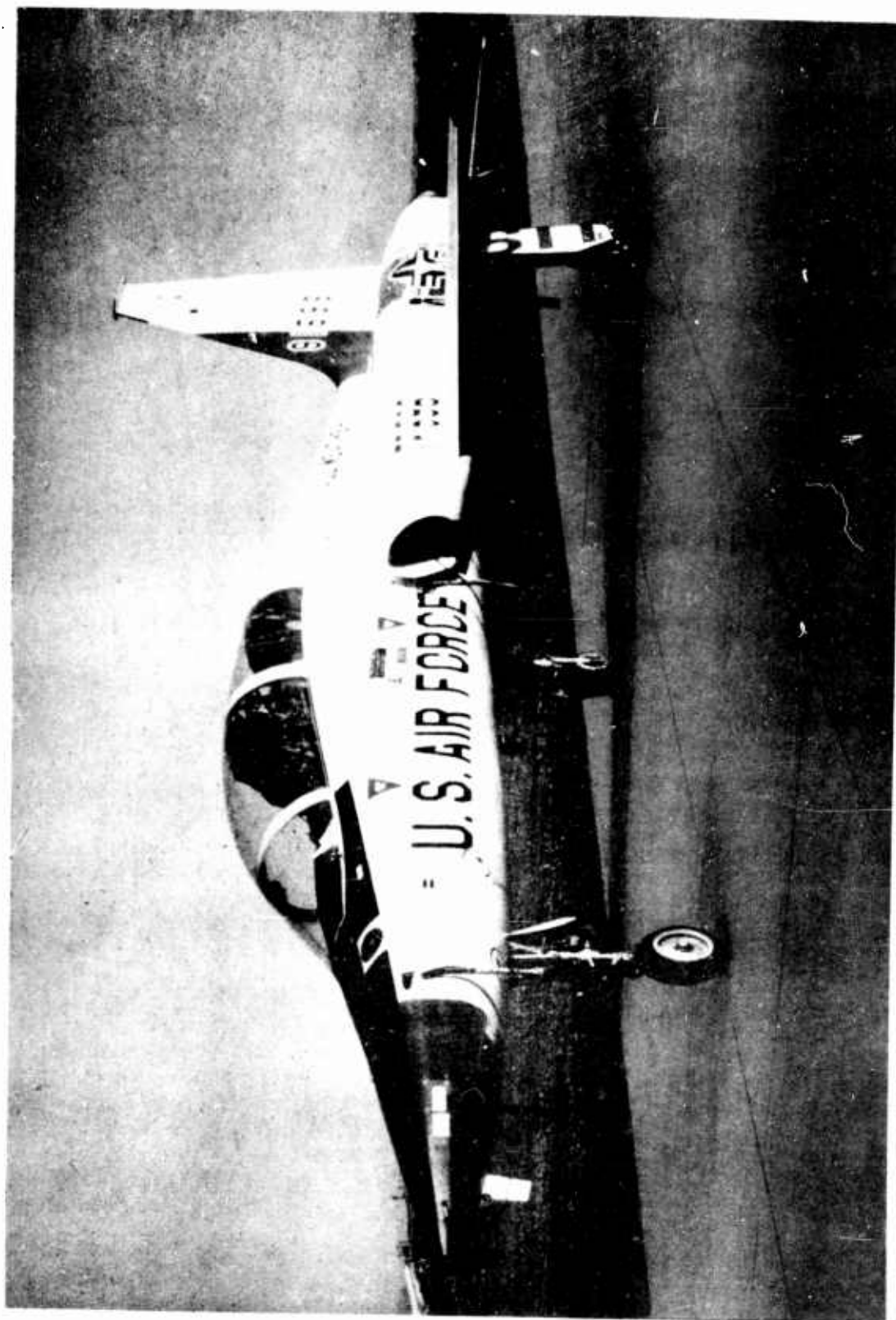
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INTRODUCTION

GENERAL

1. High temperature tests of a T-38 "Talon" aircraft (USAF S/N 59-1596), Figure 1 (frontispiece), were conducted at El Centro Naval Auxiliary Landing Field, El Centro, California. Objectives of the tests were to:

- a. Determine the adequacy of the aircraft systems and components for functioning under high temperature climatic conditions.
- b. Analyze high temperature deficiencies discovered and make recommendations for corrective action.
- c. Determine desert operating procedures to be included in Section IX of the applicable flight handbook, T. O. T-38A-1.
- d. Compile environmental data for design purposes.

2. Flight tests were designed to subject the aircraft to the most extreme temperature conditions (ambient temperatures to 115°F) which may reasonably be expected while operating in desert climates. Ground tests were conducted to obtain data in two different areas, (1) to determine the effects of high temperatures and solar heat on the aircraft, its systems and components, and (2), to determine the maximum temperature during normal engine checkouts.

3. Systems and components of the aircraft presented no problems which can be directly or indirectly attributed to high temperatures.

DESCRIPTION OF THE TEST AIRCRAFT

4. The T-38A aircraft is a twin engine, two-place tandem trainer designed for speeds in the supersonic range. The mission of the aircraft is to accomplish all phases of basic pilot training, including day and night transition, formation, navigation, and adverse weather flying. The T-38A employs a low, thin wing; a movable, horizontal stabilizer; and fuselage lines characterized by distinct reverse curvature in the area of the wing root in conformance with the "area rule" concept. The crew normally consists of a student pilot and an instructor; the aircraft can be flown solo from either cockpit.

5. The test aircraft had a basic weight of approximately 7760 pounds with an internal fuel capacity of 3640 pounds. For this test, the weight of the fully loaded aircraft, two crew members, 3640 pounds of fuel, and instrumentation recording equipment, was 11,800 pounds.

6. The YJ85-GE-5 engines, mounted nearly parallel to each other and near the center line of the aircraft, comprise an axial-flow eight-stage compressor coupled directly to

a two-stage turbine. The engine incorporates a variable area inlet-guide vane system, a controlled compressor interstage bleed, an afterburner with a variable area exit nozzle, and employs a direct impingement type starting system.

TEST INSTRUMENTATION

7. Basic instrumentation included most of the thermocouples and transducers for the temperature and pressure pick-ups with all the necessary wiring leading from the pick-ups to the rear cockpit. The recording equipment, installed in the rear cockpit, included six switch boxes, a balance box, a junction box, and a digitizer equipped with a tape transport for recording. Most of the equipment was placed in the rudder pedal wells, which permitted an observer in the aft cockpit for all test flights. (The control stick and rudder pedals had been removed prior to the delivery of the aircraft to facilitate the installation of the recording system).

8. The flight test engineer controlled the recording system from a control panel mounted in the rear cockpit. During engine starts, the controls were set on "continuous" and only the first two switch boxes were used to get engine start data since they contained all of the engine parameters. This gave a repeating cycle every four seconds for any one parameter. When all six of the 30 position switch boxes were used, each parameter was sampled once every 12 seconds since the digital recording system has the capability of recording 180 parameters in 12 seconds. Throughout the test, the recording system was cycled at one-minute intervals during stabilized conditions, and operated continuously during transient conditions.

9. A total of 119 parameters including 77 temperatures, 28 pressures, and 14 miscellaneous measurements were recorded by the digital recording system. A complete listing of the instrumentation is included in Appendix A.

10. Solar radiation was measured by an Epply pyrhelimeter coupled to a modified Brown milli-volt recorder. The pyrhelimeter is sensitive to those factors such as cloud coverage, moisture, and dust, which affect the amount of solar heat reaching the test aircraft. Mounted on the platform adjacent to the pyrhelimeter were ten thermocouples which included one shaded, two with black metal discs, and seven unshielded. (See Figure 2 of Appendix C for the exact locations.) The thermocouples were positioned to record the ambient temperatures around the test aircraft from ramp level up to six feet above the ramp.

TEST PROCEDURES AND RESULTS

FLIGHT TEST SUMMARY

Foreign Object Damage

11. The engines are started with an external air supply. Engine starting is accomplished by direct impingement of low-pressure air on the second-stage turbine wheel of the two-stage engine rotor.

12. Periodic inspection subsequent to the desert test showed that the turbine sections of both engines had suffered foreign object damage. No damage whatsoever was discovered in the compressor sections. It appeared that either the small baffles from the

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Manuscript released by the author 1 December 1960 for publication as a WADD Technical Note.

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first-stage turbine or foreign objects had entered the turbine section causing the damage. The foreign objects may have been forced into the first stage of the turbine through the starter air ducts. As the engine started motoring, air from the engine compressor would have forced the objects back through both sections of the turbines. The objects damaged turbine nozzles, blades, and partitions. On the day before the final ground engine run, a violent wind storm had occurred, in which quantities of sand and pebbles were blown around extensively. Some of these may have entered the duct of the MA-1 starting unit. As it is not common practice to inspect or blow out this duct before attaching the MA-1 unit to the starter air duct receptacle, it is likely that the foreign objects entered the engines in this manner.

Accessory Power Shaft Failure

13. Immediately after the flight on 22 August, a turn-around flight had to be abandoned because of a failure in the hydraulic system due to shearing of the radial shaft in the engine driven accessory gearbox. (The engine mounted accessories are driven from an accessory gearbox on the under side of the engine. The gearbox is driven by a radial shaft from the engine rotor. One of the drive pads on the accessory gearbox of each engine drives an airframe mounted accessory power assembly which consists of a two-speed automatic shifting gearbox. Each gearbox drives a generator and hydraulic pump. The two-speed gearboxes shift automatically during engine acceleration or deceleration to maintain a safe operating speed for the generators and hydraulic pumps.) When the left engine was started the generator caution light remained on and there was no hydraulic pressure in the left hydraulic system. Subsequent investigation revealed that the radial shaft (P/N 741C-872) in the engine driven accessory gearbox had sheared. The malfunction apparently had been caused by the failure of the two-speed gearbox to shift down during engine shut-down after the previous flight. The failure was not a high temperature fault and has happened frequently on other T-38 aircraft. The gearbox was removed during the periodic inspection and thoroughly examined. There were no faults or maladjustments found. The contractor has had serious quality control problems with this particular vendor and has changed vendors.

GROUND TEST SUMMARY

Static Temperature Survey

14. The static temperature surveys were conducted during two weekend periods. The first, on 20-21 August, was compromised to some extent by light winds and clouds. The second period, on 26, 27, 28 August, represented more extreme conditions. Selected data from the latter test are presented in Appendix C. The solar radiation and ambient air temperatures are plotted for all three days as shown in Figures 3 through 6 of Appendix C.

15. For the static temperature survey, the aircraft was parked on the ramp away from buildings or other obstructions which would cast shadows. The aircraft was parked with its longitudinal axis oriented in the north-south direction; cockpit canopies were closed and locked for the entire heat-soak period to obtain the maximum cockpit temperatures under the most extreme conditions. Temperature data were recorded at 30-minute intervals from 0700 to 1800 hours and at 60-minute intervals from 1800 to 0700 hours. No covers were used on the canopies.

16. Analysis of the data presented in Appendix C shows that the maximum temperature of 160°F occurred in the upper fuselage and in the cockpit area where the effects of solar radiation are greatest.

17. Comparison of the data over the complete soak period indicates that little or no heat is retained in the aircraft or aircraft systems from one day to the next. Therefore, opening or closing the aircraft in the evening will have no effect on the peak temperatures on the following day.

18. No unusual problems are anticipated if the aircraft is kept closed during high temperature periods. It would be advisable, however, to vent the aircraft when weather conditions permit, to reduce the temperatures within the aircraft. Normal high temperature problems associated with increased deterioration of rubber materials, plastics, and lubricants may be expected along with minor thermal stress.

Ground Engine Run

19. The engines were operated at various stabilized speeds from idle to maximum power with afterburners to determine the maximum temperatures which may be expected to occur in the aircraft compartments and systems during normal desert ground engine checkouts. Although high temperatures were reached, none of them appeared to be excessive. The engine run data does not appear in this report but is available from the originator upon request.

CONCLUSIONS

20. No serious deficiencies were encountered during the tests that could be attributed to high temperature operations. Maintenance of the aircraft in a desert climate presented no unusual problems; therefore, the aircraft may be considered suitable for desert-type operation such as encountered in the test area.

RECOMMENDATIONS

21. The following recommendations are based on the results of the high temperature functional evaluation tests conducted on the T-38A aircraft at El Centro NALF:

a. Eliminate the possibility of foreign objects entering the starting unit hose by placing a screening device in the adapter between the starting unit hose and the starter air duct receptacle of the engine. (Reference paragraph 12).

b. Include the Desert Operating Procedures, which follow, in Section IX of the applicable flight handbook, T. O. T-38A-1.

DESERT AND HOT WEATHER PROCEDURES

22. Hot weather and desert procedures differ from normal procedures mainly in that additional precautions must be taken to protect the aircraft from damage caused by high temperatures and dust. Particular care should be taken to prevent the entrance of sand into the various aircraft components and systems (engine, fuel system, pitot-static systems, etc.). All filters should be checked more frequently than under normal conditions. Units with plastic or rubber parts should be protected as much as possible from wind-blown sand and excessive temperatures. Canopy covers should be left off to prevent sand from entering between the cover and the canopy and acting as an abrasive on the plastic.

Heat buildup under closed canopy will not damage cockpit at runway temperatures of 110°F or less.

Before Entering Aircraft

NOTE: All metal surfaces exposed to the sun will be extremely hot to the touch, and gloves should be worn during preflight inspections.

1. Check exposed portions of shock strut pistons for dust and sand and have them cleaned if necessary.
2. Check inflation of shock struts and hydraulic accumulators which may have become over-inflated due to temperature increases.
3. Check tires carefully for improper inflation and blistering or cord separation.
4. Be sure all protective covers are removed from aircraft.
5. Check intake duct for accumulations of dust or sand.
6. Make sure all filters have been cleaned and that the aircraft has been thoroughly inspected for fuel or hydraulic leaks caused by the swelling of packings or expanding of fittings.
7. Inspect area behind aircraft to make sure sand or dust will not be blown onto personnel or equipment during starting operations.
8. Check starting unit duct for accumulations of small stones and sand.

On Entering Aircraft

1. Check cockpit for accumulation of dust or sand.
2. Check instruments and controls for moisture from high humidity, and apply heat if necessary, to dry them.

NOTE: All items in the cockpit that have been exposed to the sun are extremely hot to touch unless the cockpit has been protected by a canopy sun shade.

Ground Operation

1. Normal starting procedures are used in hot weather.
2. Expect the engines to accelerate more slowly than on a normal or cold day.
3. Ground checking should be complete but accomplished as rapidly as possible.
4. Limit use of brakes as much as possible during taxi operation to prevent overheating.

Takeoff

CAUTION: Takeoff planning is very important with high ambient temperatures and runways of marginal length. Takeoff distance will be longer because the air is less dense and ground speed will be increased for the same indicated airspeed. The refusal speed and distance, and the speed and distance checks should be carefully calculated.

1. To prevent additional drag caused by excessive angle of attack, the nose should not be lifted off until slightly below the recommended rotation speed.
2. Hot weather operation requires the pilot to be cautious of gusts and wind shifts near the ground.

During Flight

1. During high altitude flight the windshield and canopy defrost system should be operated at the highest possible temperature consistent with the crew members' comfort. This will preheat the transparent surfaces, thus precluding the formation of frost or fog during descent.

Approach and Landing

1. Check very closely and maintain recommended indicated approach and touchdown speeds. Because of high outside air temperatures, speed relative to the ground is higher than normal.
2. Anticipate a long landing roll due to higher ground speed at touchdown.
3. Use all available runway for stopping to avoid overheating the brakes.

Before Leaving Aircraft

1. Make sure that the protective cover is installed immediately on the pitot boom.

NOTE: Engine intake and exhaust duct covers should not be installed before normal engine cool-down period.

APPENDIX A

INSTRUMENTATION SUMMARY

The T-38A test aircraft's basic instrumentation was installed during production by the Norair Division of the Northrop Corporation in accordance with military specification MIL-I-5289(ASG) as amended by WADD. The aircraft was instrumented under the concept of selective instrumentation in order to keep the total number of pick-ups to a minimum.

Essentially, the instrumentation recorded data from the left engine, the hydraulic system, the air-conditioning system, the fuel system, the electrical system, and flight parameters. A total of 119 parameters including 77 temperatures, 28 pressures, and 14 miscellaneous measurements were recorded by the digital recording system mounted in the rear cockpit of the aircraft.

The data were recorded at various rates depending on the information required. During engine starts the controls were set on "continuous" and only the first two switch boxes were used to get engine "start" data, with a repeating cycle for any one parameter every four seconds. When all six of the 30-position switch boxes were used, each parameter was sampled once every 12 seconds. Throughout the test, during stabilized conditions the recording system was cycled at one-minute intervals, and during transient conditions the system was operated continuously.

A list of the instrumentation parameters, with switch box positions and corresponding ranges, is included in Table 1 of this appendix.

Table 1

SWITCH BOX INSTRUMENTATION

BOX POSITION	PICKUP NR	ITEM	RANGE
BOX NR 1 (Pressure)			
1		Counter-Cycle	
2		Counter-Time	
3		Potentiometer-Time	
4	1	Airspeed	
5	2	Altitude	
6	3	Outside Air Temp.	
7	4	Exhaust Gas Temp.	

Table 1 (Cont'd)

BOX POSITION	PICKUP NR	ITEM	RANGE
BOX NR 1 (Pressure) (Cont'd)			
8	8	Tachometer Speed	
9	9	Throttle Position	0-115°
10	5	Main Fuel Flow Left-Hand Engine	(LB/HR)
11	11	Static Reference Manifold Pressure	± 6 PSID
12	400	Compressor Air Inlet Pressure (11:00 Position)	± 12.5 PSID
13	401	Compressor Air Inlet Pressure (7:00 Position)	± 12.5 PSID
14	405	Fuel Pressure at Inlet to Left-Hand Fus. Fuel Filter	± 25 PSID
15	406	Fuel Pressure at Outlet to Left-Hand Fus. Fuel Filter and Inlet to Engine and Afterburner Fuel Pumps	± 35 PSID
16	407	Fuel Pressure at Main Eng. Fuel Manifold Line	0-1000 PSIG
17	402	Oil Press into Eng. Pump (Oil Tank Pressure)	± 6 PSID
18	403	Oil Pressure Out of Eng. Pump	0-75 PSIG
19	10	Cabin Conditioning Control Valve Position	0-90° 1000
20	420	Static Air Sensor (Differential Pressure Between Cockpit and Static Air Sensor)	± 6 PSID
21	422	Static Pressure of Bleed Air Downstream of Shutoff Valve	± 2.5 PSID
22	423	Total Pressure of Bleed Air Downstream of Shutoff Valve	0-150 PSIG
23	424	Static Pressure of Conditioned Air Downstream of Hot-Cold Junction P _{12S}	± 2.5 PSID

Table 1 (Cont'd)

BOX POSITION	PICKUP NR	ITEM	RANGE
BOX NR 1 (Pressure) (Cont'd)			
24	425	Total Pressure of Conditioned Air Downstream of Hot-Cold Junction P _{12T}	0-30 PSIA
25	426	Static Pressure of Bleed Air By-Pass P _{10S}	± 2.5 PSID
26	427	Total Pressure of Bleed Air By-Pass P _{10T}	0-100 PSIG
27	428	Static Pressure; Bleed Air Defog Duct Upstream Nozzle (Fwd. C/P Windshield)	± 25 PSID
28	429	Static Pressure at Cockpit Ram Air in Valve	± 12.5 PSID
29		Bridge Power Reference	
BOX NR 2 (Temperature)			
1	50	Compressor Air Inlet Temp. (11:00 Position)	
2	51	Compressor Air Inlet Temp. (7:00 Position)	
3	54	Fuel Temp. Center of Fwd. Fus. Tank	
4	55	Fuel Temp. at Outlet of Fwd. Fuel Cell Boost Pump	
5	56	Fuel Temp. at Outlet of Left-Hand Fus. Fil. and Inlet to Engine	
6	58	Fuel Temp. at Fuel Oil Cooler Outlet	
7	59	Fuel Temp. at Main Eng. Fuel Flowmeter and Inlet to Oil Cooler	
8	52	Oil Temp. into Engine	
9	53	Oil Temp. out of Engine (Nr 3 Bearing)	
10	77	Amb. Air Temp. Adjacent to Cabin Temp. Sensor	

Table 1 (Cont'd)

BOX POSITION	PICKUP NR	ITEM	RANGE
BOX NR 2 (Temperature) (Cont'd)			
11	78	Cockpit Air out Downstream of Equip. Ram Air Junction	
12	79	Defog Air Temp. Upstream of Defog Nozzle	
13	80	Bleed Air Temp. Downstream of Shutoff Valve	
14	81	Bleed Air at By-Pass T_{10} (Control Valve Inlet)	
15	82	Air Temp. Downstream of Moisture Sep. Anti- Ice Valve T_{11}	
16	83	Air Temp. Downstream of Hot-Cold Junction T_{12}	
17	76	Cockpit Air in Temp. (Fwd.)	
18	85	Surface Temp. Base of Windshield (Center)	
19	85A	Surface Temp. Base of Windshield (Left Side)	
20	88	Surface Temp. Left-Hand Center of Windshield (Center)	
21	88A	Surface Temp. Left-Hand Center of Windshield (Left Side)	
22	98	Surface Temp. Center of Windshield (Top)	
23	98A	Surface Temp. Left Side of Windshield (Aft)	
24	86	Surface Temp. Top Center of Fwd. Canopy	
25	89	Surface Temp. Left Center of Fwd. Canopy	
26	89A	Surface Temp. Left Bottom of Fwd. Canopy	
27	87	Surface Temp. Top Center of Aft. Canopy	
28	90	Surface Temp. Left Center of Aft Canopy	
29	90A	Surface Temp. Left Bottom of Aft Canopy	

Table 1 (Cont'd)

BOX POSITION	PICKUP NR	ITEM	RANGE
BOX NR 3 (Temperature)			
1	70	Pilot's Foot Temp.	
2	71	Pilot's Waist Temp. (Unshielded)	
3	71A	Pilot's Waist Temp. (Shielded)	
4	72	Pilot's Head Temp.	
5	73	Student's Foot Temp.	
6	74	Student's Waist Temp. (Unshielded)	
7	74A	Student's Waist Temp. (Shielded)	
8	75	Student's Head Temp.	
9		Zero Reference	
10	91	Ambient Temp. Aft Electrical Compartment (STA-282) Right-Hand	
11	92	Ambient Temp. Aft Electrical Compartment (STA-282) Left-Hand	
12	93	Ambient Temp. Aft Electrical Compartment (STA 277)	
13	94	Ambient Temp. Fwd. Electrical Compartment (STA 103.5) Right-Hand	
14	95	Ambient Temp. Fwd. Electrical Compartment (STA 112) Right-Hand	
15	96	Ambient Temp. Fwd. Electrical Compartment (STA 135) Left-Hand	
16	97	Ambient Temp. Fwd. Electrical Compartment (STA 135) Right-Hand	
17	110	Utility Pump Inlet Oil Temp.	
18	111	Utility Pump Outlet Oil Temp.	
19	112	Utility Reservoir Inlet Oil Temp.	
20	113	Utility Cooler Inlet Oil Temp.	

Table 1 (Cont'd)

BOX POSITION	PICKUP NR	ITEM	RANGE
BOX NR 3 (Temperature) (Cont'd)			
21	114	Flt. Control Pump Inlet Oil Temp.	
22	115	Flt. Control Pump Outlet Oil Temp.	
23	116	Flt. Control Reservoir Inlet Oil Temp.	
24	117	Flt. Control Inlet Oil Temp., Right-Hand Rudder Cyl.	
25	118	Flt. Control Outlet Oil Temp., Right-Hand Rudder Cyl.	
26	119	Flt. Control Cooler Inlet Oil Temp.	
27	120	Skin Temp. to Left-Hand Aileron Cyl. (Door 28)	
28	121	Ambient Temp. to Left-Hand Aileron Act.	
29	122	Case Temp. to Left-Hand Aileron Act.	
BOX NR 4 (Pressure)			
1		Counter-Time (Omit)	
2		Potentiometer-Time	
3	1	Airspeed	
4	2	Altitude	
5	3	Outside Air Temp.	
6	4	Exhaust Gas Temp.	
7	5	Main Fuel Flow (Left-Hand Engine)	(LB/HR)
8	6	Main Afterburner Fuel Flow (Left-Hand Engine)	0-24 GPM
9	8	Tachometer Speed	

Table 1 (Cont'd)

BOX POSITION	PICKUP NR	ITEM	RANGE
BOX NR 4 (Pressure) (Cont'd)			
10	10	Cabin Conditioning Control Valve Position	0-90° 1000
11	11	Static Reference Manifold	± 6 PSID
12	404	Differential Pressure Between Fwd. Fuel Cell and Fwd. Fuel Cell Cavity	± 7.5 PSID
13	450	Total Pressure Cooling Air Inlet to Alternator	± 12.5 PSID
14	451	Alternator, Compartment Static Pressure	± 6 PSID
15	440	Utility Pump Inlet Pressure	± 25 PSID
16	441	Utility Pump Outlet Pressure	0-5000 PSIG
17	442	Flight Control Pump Inlet Pressure	± 25 PSID
18	443	Flight Control Pump Outlet Pressure	0-5000 PSIG
19	444	Flight Control Inlet Pressure, Right-Hand Rudder Act.	0-3500 PSIG
20	430	Static Pressure, Air into Util. Symmetrical Hydraulic Reserve	± 12.5 PSID
21	408	Fuel Pressure at Main Eng. A/B Fuel Manifold Line	0-1000 PSIG
22	421	Fwd. Equip. Compartment Pressure, Differential Pressure to Static Air Sensor	± 6 PSID
BOX NR 5 (Temperature)			
1	130	AC Alternator Cooling Air Inlet Temp.	
2	131	AC Alternator Cooling Air Outlet Temp.	

Table 1 (Cont'd)

BOX POSITION	PICKUP NR	ITEM	RANGE
BOX NR 5 (Temperature) (Cont'd)			
3	133	Ambient Air Temp. Near Alternator	
4	132	AC Alternator Frame Temp.	
5	60	Fuel Temp at A/B Fuel Flowmeter	
6	134	Frame Temp. of Voltage Regulator	
7	61	Surface Temp. of Stabilizer Act. Bearing	
8	84	Temp. of Air to Pressurize Utility System Hydraulic Reservoir	
9	228	Battery Compartment Ambient	
10	229	Battery Terminal Temp.	
11	76A	Aft Cockpit Air Inlet Temp.	
12		High Reference	
13		Bottom Seat Remover	
14		Middle Seat Remover	
15		Top Seat Remover	
16		Canopy Remover	
17		Ambient at Canopy Remover (Spare) Top	
18		Ambient at Canopy Remover (Spare) Bottom	
21		I.C. Compartment	
22		AC Alternator Cool Air Inlet Temp.	
23		AC Alternator Cool Air Outlet Temp.	
24		Alternator Ambient Air Temp.	
25		AC Alternator Frame Temp.	
26		Aft Cockpit Total Air	

APPENDIX B

DESCRIPTION OF FLIGHTS

GENERAL

Eleven flight tests were made to determine the extreme high temperature operating limits which can be expected to occur throughout the aircraft and to obtain preliminary instrument flight procedures for the aircraft. Temperatures and pressures which occur in the hydraulic oil, engine oil, fuel, and air-conditioning systems were monitored by instrumentation recording equipment to determine their operating limits. In addition to determining extremes, several flights were devoted to normal high temperature operation and design missions to establish an envelope of expected normal desert operating conditions for inclusion in Section IX of the Flight Manual. Preliminary instrument procedures for takeoff, climb, holding, jet penetration, low approach, GCA, and missed approach were also developed during the test period. All but one test flight were flown during the hottest portion of the day. A weather station temperature of 105°F coupled with a solar radiation of 310 btu/sq ft/hr was established as the desired test minimums. The 105°F minimum temperature was obtained on most flights, although, due to the calendar time of the test, the solar radiation was below the desired maximum. A ground temperature survey was conducted prior to each flight which consisted of at least a four-hour heat soak.

Table 2

HIGH TEMPERATURE FLIGHT CONDITIONS

FLIGHT TEST NR 1 (ADVERSE WEATHER PROCEDURES)

DATE: 19 Aug 60
FLT. TIME: 70 Minutes

MAX. AMBIENT TEMPERATURE: 109°F
T/O AMBIENT TEMPERATURE: 109°F

OBJECTIVE: To accomplish an inflight temperature survey of various subsystems at an altitude of 20,000 feet, an instrument takeoff (ITO), a ground controlled approach (GCA), and a single engine saw-tooth descent.

COMMENT: A simulated instrument takeoff was made using VFR takeoff procedures. At 20,000 feet the right engine was shut down and a descent made to simulate a single engine penetration. A GCA was simulated utilizing a closed airfield.

FLIGHT TEST NR 2 (MISSION 2, SUPERSONIC TRAINING)

DATE: 22 Aug 60
FLT. TIME: 75 Minutes

MAX. AMBIENT TEMPERATURE: 106°F
T/O AMBIENT TEMPERATURE: 106°F

OBJECTIVE: To provide normal systems operating data and to evaluate the air-conditioning and pressurization systems. Adverse weather flight procedures and techniques were practiced at the end of the mission.

Table 2 (Cont'd)

FLIGHT TEST NR 2 (MISSION 2, SUPERSONIC TRAINING) (Cont'd)

COMMENT: An instrument takeoff and a military power climb to 40,000 feet were accomplished. The airspeed was stabilized at .88 Mach for 15 minutes. The aircraft was then accelerated to its maximum power and held for 10 minutes. A holding pattern, descent in a holding pattern, penetrations from 20,000 feet, and a GCA were made before returning to the El Centro NALF.

FLIGHT TEST NR 3 (ADVERSE WEATHER PROCEDURES)

DATE: 24 Aug 60 (FIRST FLT.)	MAX. AMBIENT TEMPERATURE 104°F
FLT. TIME: 90 Minutes	T/O AMBIENT TEMPERATURE 104°F
T/O ROLL: 2600 Ft	LANDING ROLL: 3350 Ft

OBJECTIVE: To accomplish a high-speed temperature survey at low altitude, instrument takeoff, two holding penetrations, and two GCA approaches.

COMMENT: An instrument takeoff was conducted in the same manner as previous flights except that A/B operation was maintained longer than before. A holding pattern was performed at 30,000 feet and a penetration was made at an altitude of 20,000 feet. Missed approach procedures were practiced along with two GCA approaches.

FLIGHT TEST NR 4 (MISSION 4, NIGHT FLIGHT)

DATE: 24 Aug 60 (SECOND FLT.)	MAX. AMBIENT TEMPERATURE: 91°F
FLT. TIME: 90 Minutes	T/O AMBIENT TEMPERATURE: 91°F
T/O ROLL: 2550 Ft	LANDING ROLL: 2950 Ft

OBJECTIVE: To perform a temperature survey after sundown. Its purpose was to determine the effects of solar radiation on air-conditioning requirements.

COMMENT: The previously developed instrument takeoff and climb techniques were applied to night operations and found acceptable. After climb to 30,000 feet the aircraft was accelerated to and held at its maximum airspeed for 10 minutes. It was then decelerated to and held at its maximum endurance airspeed for 15 minutes. A holding pattern, penetration, and a GCA were performed as in previous flights.

FLIGHT TEST NR 5 (MISSION 1, LOW ALTITUDE)

DATE: 25 Aug 60 (FIRST FLT.)	MAX. AMBIENT TEMPERATURE: 100°F
FLT. TIME: 90 Minutes	T/O AMBIENT TEMPERATURE: 97°F
T/O ROLL 2600 Ft	LANDING ROLL: 3250 Ft

OBJECTIVE: To provide extreme and normal operating data on the various aircraft systems at both high and low altitudes. Penetrations and VOR approaches using GCA procedures were made at the end of the low altitude portion of the test.

Table 2 (Cont'd)

FLIGHT TEST NR 5 (MISSION 1, LOW ALTITUDE) (Cont'd)

COMMENT: After an instrument takeoff and climb to 35,000 feet, power was reduced to best cruise airspeed and held for 10 minutes followed by 15 minutes at maximum endurance airspeed. Following a maximum rate of descent to 700 feet, the aircraft was held at military power at this altitude for 10 minutes. Adverse weather procedures were practiced at the end of the test run.

FLIGHT TEST NR 6 (ADVERSE WEATHER PROCEDURES)

DATE: 25 Aug 60 (SECOND FLT.)	MAX. AMBIENT TEMPERATURE: 95°F
FLT. TIME: 90 Minutes	T/O AMBIENT TEMPERATURE: 95°F
T/O ROLL: 2600 Ft	LANDING ROLL: 3600 Ft

OBJECTIVE: To accomplish an instrument takeoff followed by a single engine penetration, GCA, VOR, and missed approach.

COMMENT: All of the single engine procedures were worked out on this flight. The Yuma VOR and LF stations were used to develop adverse weather procedures.

FLIGHT TEST NR 7 (MISSION 3, HIGH SPEED)

DATE: 29 Aug 60	MAX. AMBIENT TEMPERATURE: 108°F
FLT. TIME: 80 Minutes	T/O AMBIENT TEMPERATURE: 108°F
T/O ROLL: 2600 Ft	LANDING ROLL: 3860 Ft

OBJECTIVE: To make inflight temperature measurements of various subsystems at maximum airspeed at an altitude of 20,000 feet. Adverse weather information on flight procedures and techniques were practiced at the end of the test run.

COMMENT: An instrument takeoff and climb to 20,000 feet were made using VFR takeoff procedures. The aircraft was accelerated to its maximum airspeed and maintained for 10 minutes, then decelerated to its maximum endurance airspeed and held for 15 minutes. Two holding patterns and penetrations were performed over the Yuma VOR station. A GCA was flown using VFR procedures.

FLIGHT TEST NR 8 (MISSION 5, LOW LEVEL, HIGH SPEED)

DATE: 30 Aug 60	MAX. AMBIENT TEMPERATURE: 111°F
FLT. TIME: 65 Minutes	T/O AMBIENT TEMPERATURE: 107°F
T/O ROLL: 2700 Ft	LANDING ROLL: 3825 Ft

OBJECTIVE: To provide extreme operating data on the various aircraft systems and evaluate the air-conditioning systems at high speed and high ambient temperature conditions.

Table 2 (Cont'd)

FLIGHT TEST NR 8 (MISSION 5, LOW LEVEL, HIGH SPEED) (Cont'd)

COMMENT: An instrument takeoff and climb to 2500 feet were made and the aircraft was stabilized at maximum military power for 15 minutes followed by a climb to 20,000 feet at military power and stabilized at maximum endurance airspeed for 15 minutes. The final portion of the test consisted of a stabilization for 15 minutes at cruise airspeed.

FLIGHT TEST NR 9 (MISSION 6, HIGH ALTITUDE, CRUISE AIRSPEED)

DATE: 2 Sep 60
 FLT. TIME: 105 Minutes
 T/O ROLL:

MAX. AMBIENT TEMPERATURE: 106°F
 T/O AMBIENT TEMPERATURE: 105°F
 LANDING ROLL: 3530 Ft

OBJECTIVE: To provide simulated design navigational training and normal operational data on all systems of the aircraft. Data was obtained for adverse weather during a portion of this mission.

COMMENT: After an instrument takeoff and military climb to 42,000 feet, the aircraft was held for 30 minutes at its best cruise airspeed (.885M). A descent to 30,000 feet was made and the aircraft held at its best cruise airspeed for 15 minutes followed by a descent to 20,000 feet and a practice penetration for GCA tests and single engine operation procedures.

FLIGHT TEST NR 10 (MISSION 5, REPEAT LOW-LEVEL HIGH SPEED)

DATE: 3 Sep 60
 FLT. TIME: 60 Minutes
 T/O ROLL: 2600 Ft

MAX. AMBIENT TEMPERATURE: 115°F
 T/O AMBIENT TEMPERATURE: 109°F
 LANDING ROLL: 3950 Ft

OBJECTIVE: To provide data during extreme operating conditions on the various aircraft systems.

COMMENT: An instrument takeoff and military climb to 2500 feet were made. The aircraft was stabilized at maximum military power for 10 minutes, followed by a military-power climb to 20,000 feet, and best cruise airspeed accomplished and held for 10 minutes. Then the aircraft was decelerated to its maximum endurance airspeed and held for 15 minutes.

(See Appendix D For Tabulated Data on this Mission)

FLIGHT TEST NR 11 (MISSION 7, CRUISE AIRSPEED)

DATE: 4 Sep 60
FLT. TIME: 75 Minutes
T/O ROLL: 2600 Ft

MAX. AMBIENT TEMPERATURE: 113°F
T/O AMBIENT TEMPERATURE: 110°F
LANDING ROLL: 3400 Ft

(See Appendix D For Tabulated Data on this Mission)

OBJECTIVE: To provide general operating data on the aircraft systems by flying at cruise airspeed at 35,000 and 20,000 feet altitude.

Following an instrument takeoff and military power climb to 35,000 feet, the aircraft was flown for 35 minutes at its best cruise airspeed. A descent to 20,000 feet was made and the aircraft was stabilized at its best cruise airspeed for 10 minutes. Adverse weather flight procedures and techniques were practiced during this mission.

APPENDIX C

STATIC TEMPERATURE SURVEY DATA

Over the weekend of 26-28 August, a static temperature survey was conducted by NALF at El Centro, California, for 60 consecutive hours. The tabulated data is presented in this appendix with selected compartment temperatures and ambient air temperatures presented in graphic form. (Reference paragraphs 17 and 18.)

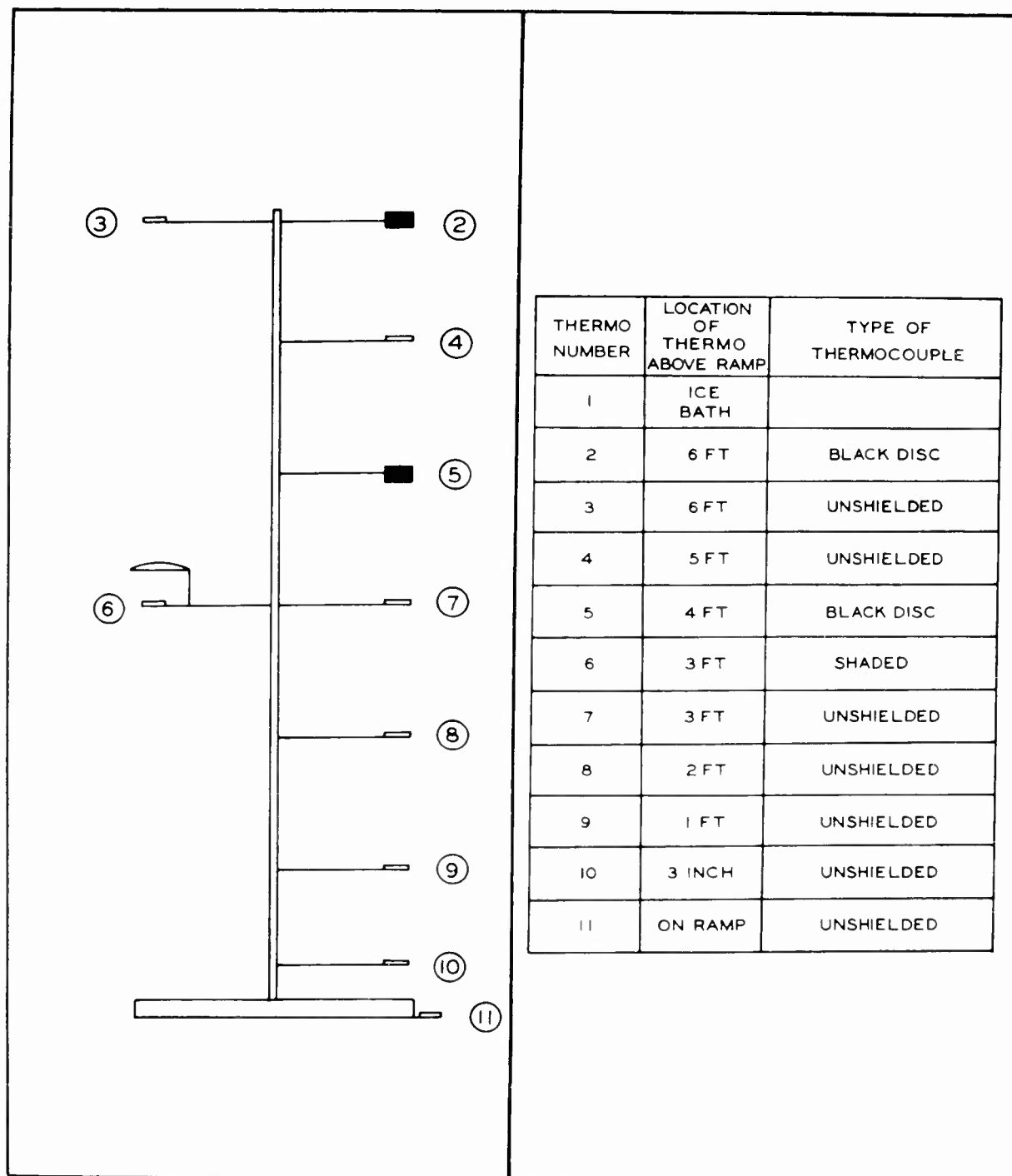


Figure 2. Thermocouple Locations for the Static Temperature Survey.

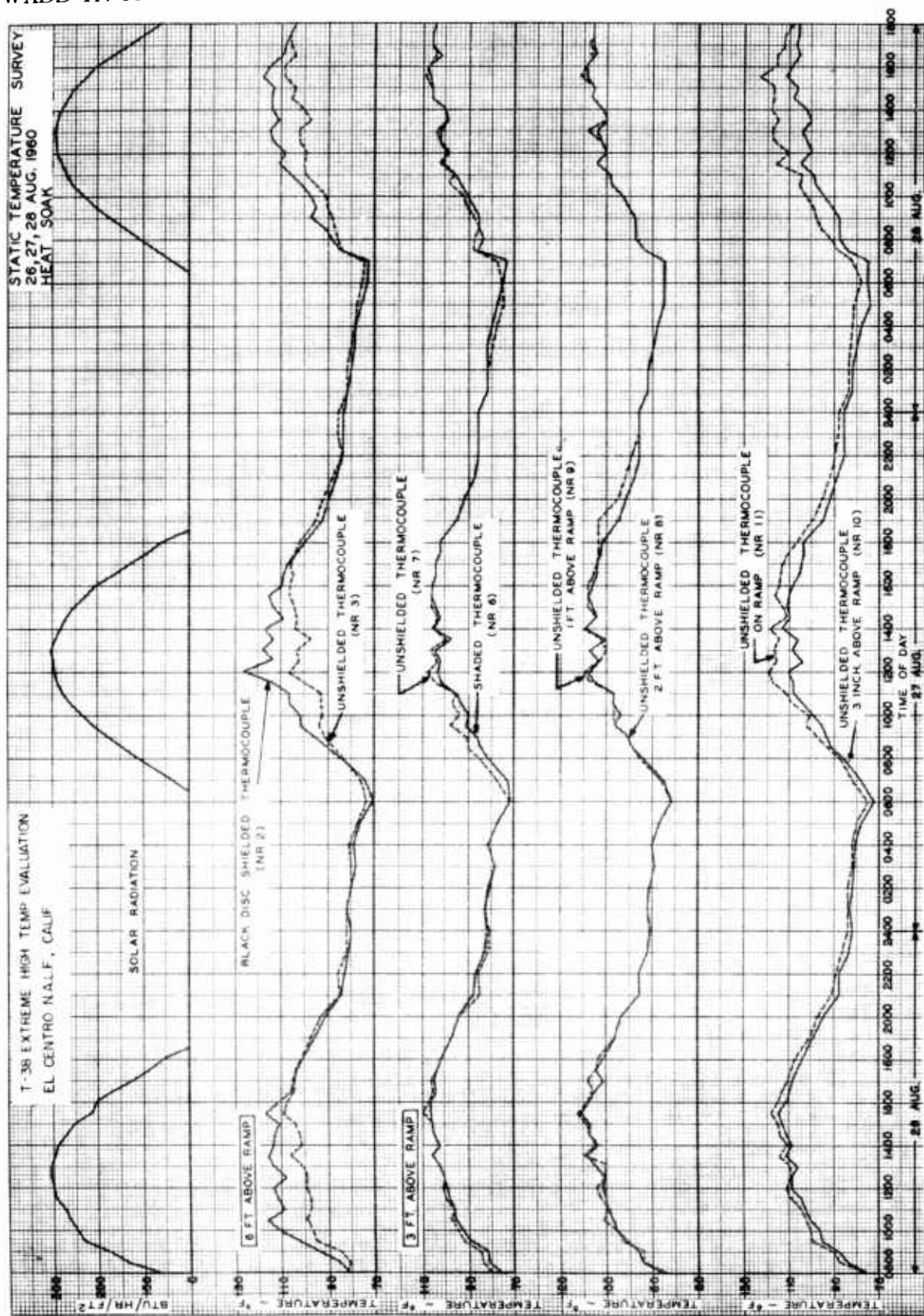


Figure 3. Solar Radiation and Ambient Air Temperatures (26, 27, 28 August 1960).

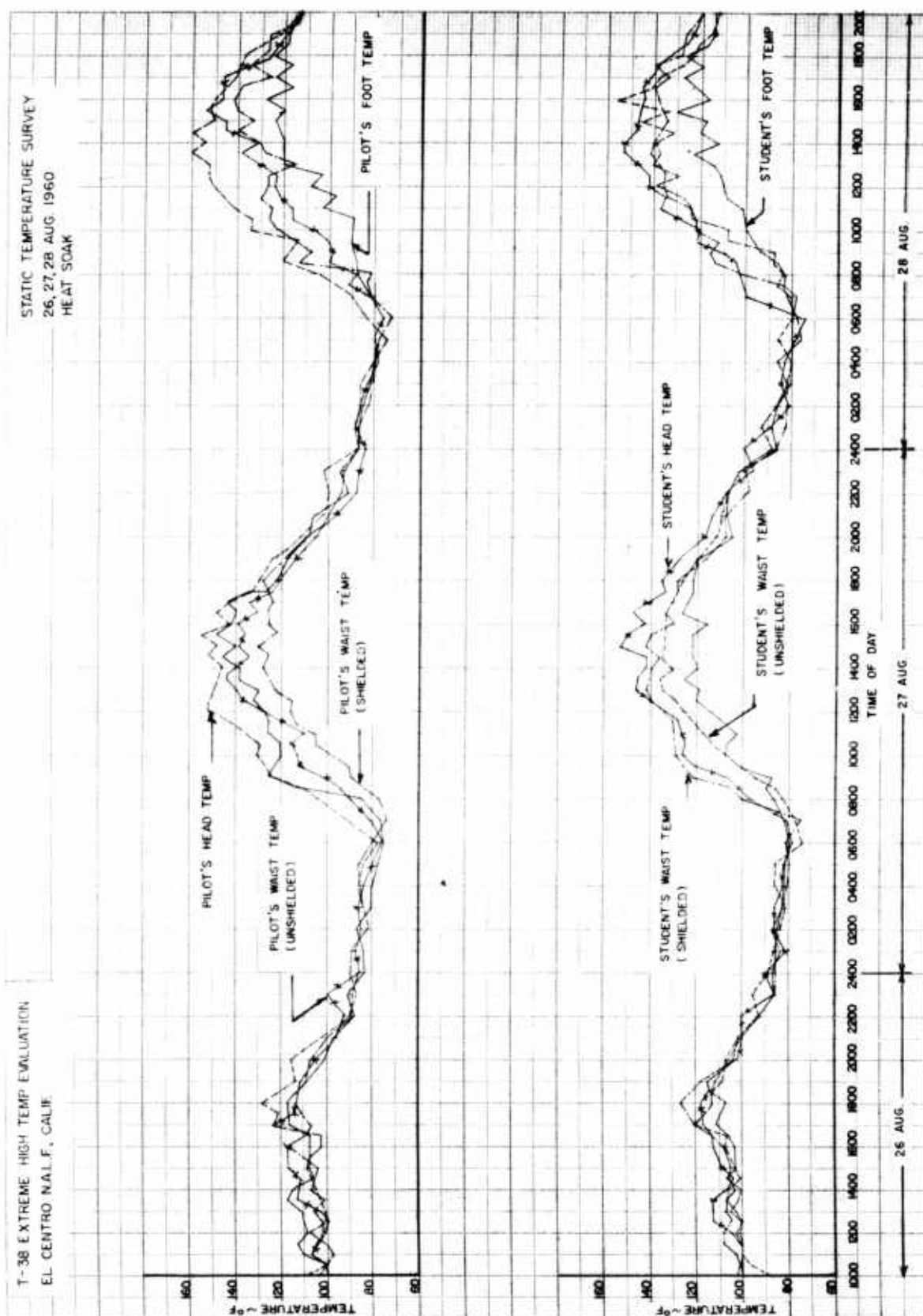


Figure 4. Temperature Survey (Pilot and Co-Pilot).

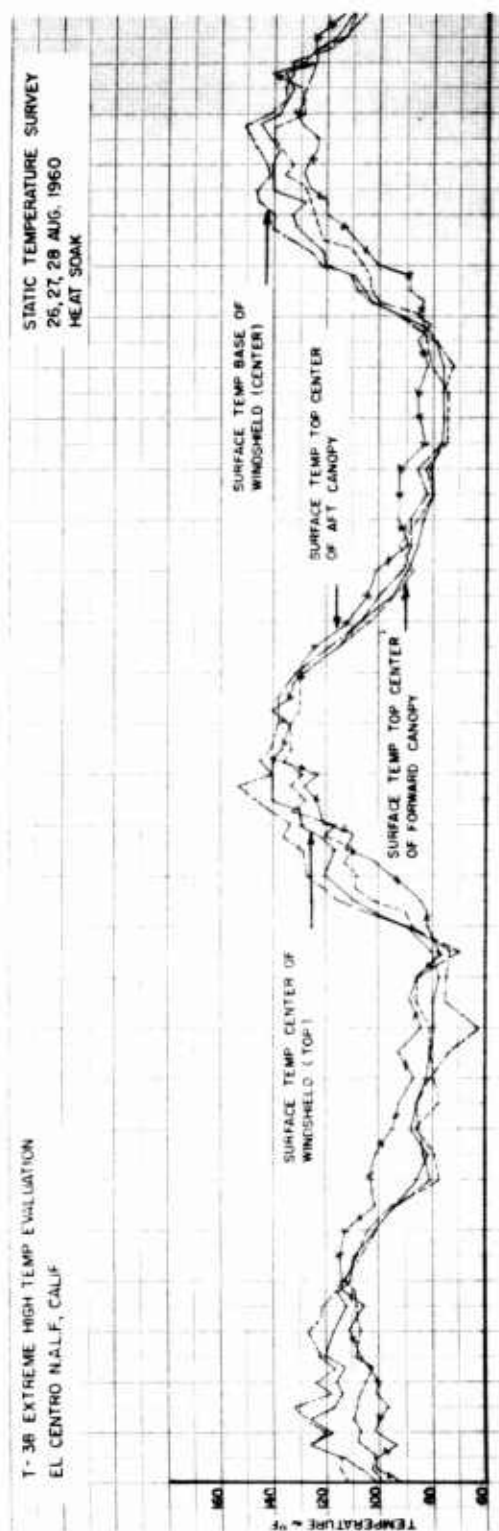


Figure 5a. Canopy Surface Temperatures (Interior).

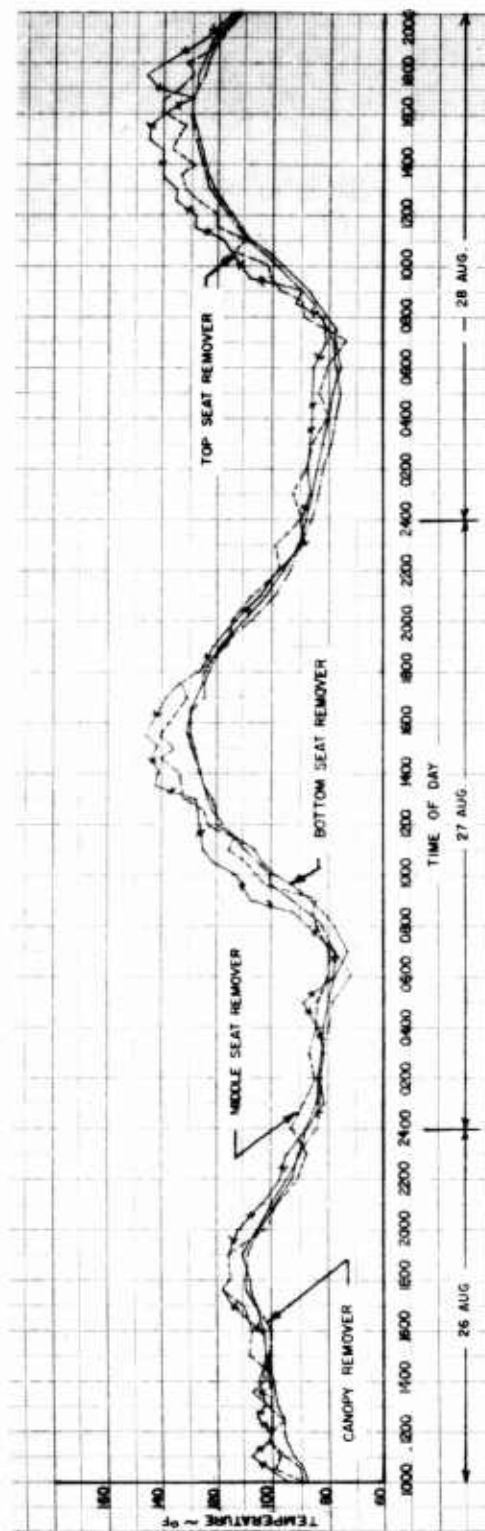


Figure 5b. Escape Systems Actuator Temperatures.

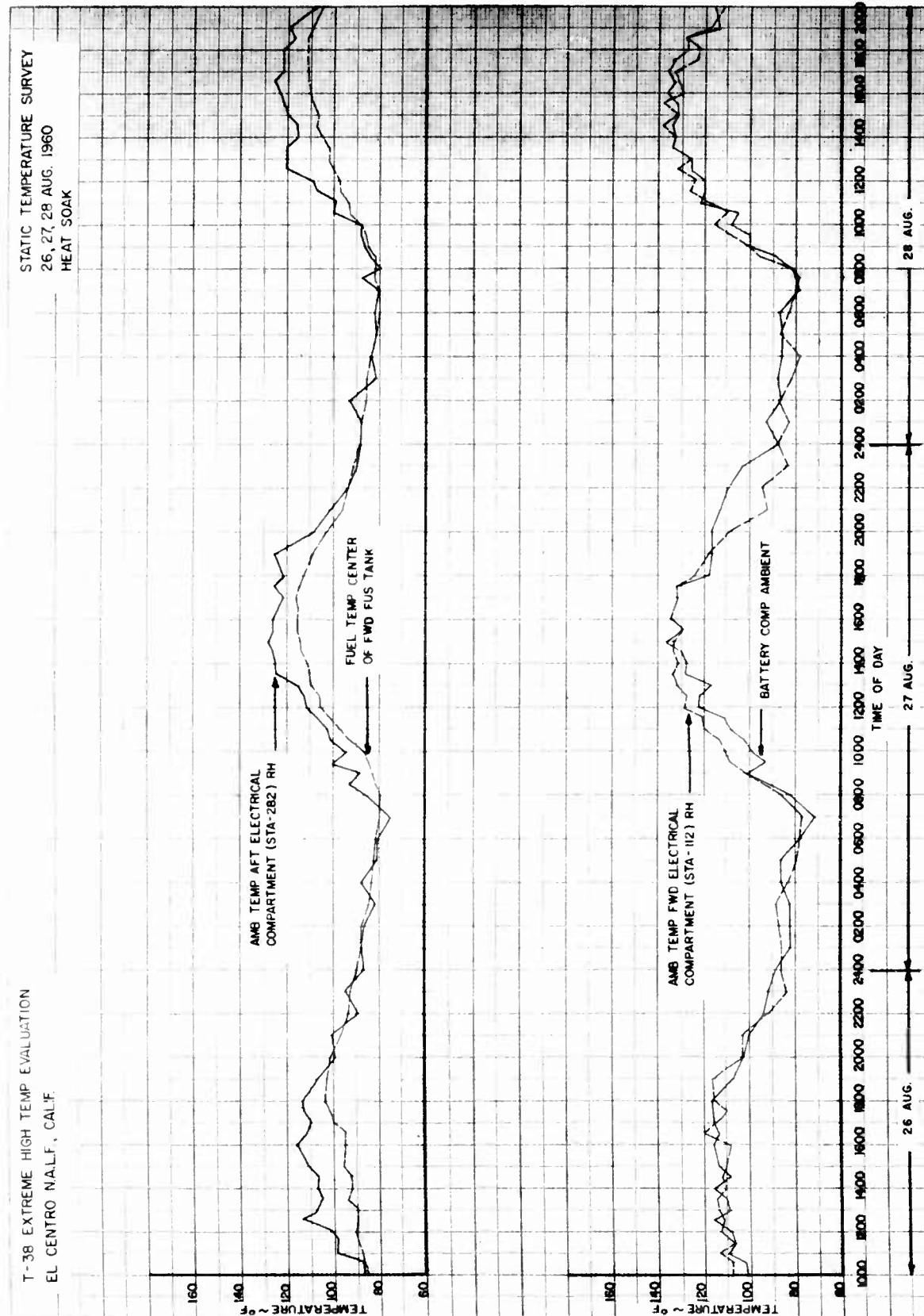


Figure 6. Aircraft Internal Temperatures.

T-38 High Temperature Evaluation Data (26, 27, 28 August 1960)

CN	TIME	2-3	2-4	2-5	2-6	2-7	2-8	2-9	2-10	2-11	2-12	2-13	2-14
		FUEL	FUEL	FUEL	FUEL	FUEL	OIL	OIL	AMR	C/P	DEFNG	BLFFD	BLFFD
		TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	AIR	TEMP	TEMP	TEMP
		CFNT	CFNT	CFNT	CFNT	CFNT	IN	OUT	ADJ	OUT	UPSTR	DNSTR	RY
		FWD	FWD	FILT	COOL	OIL	FNG	FNG	CATN	DNSTR	NOZ	S-OFF	PASS
		FUS	CELL		OUT	COOL			SEN	EQUIP		VAL	TEMP
		TANK	ROOST							RAM			
			PUMP							JUNC			
2	930	85	84	87	85	88	84	86	94	100	100	90	85
6	1000	86	86	92	86	90	86	86	99	109	100	90	88
10	1030	87	86	90	89	91	88	89	101	106	101	93	97
14	1100	88	88	93	90	95	90	91	101	112	107	96	93
18	1130	89	89	97	93	99	95	94	107	107	113	100	99
22	1200	91	90	96	95	97	95	95	109	105	113	100	107
26	1230	90	90	96	95	98	94	95	102	103	105	103	103
30	1300	90	90	97	96	100	100	97	107	107	115	100	107
34	1330	94	93	97	97	98	97	97	102	107	107	102	107
38	1400	93	92	97	97	98	97	97	101	102	107	103	104
42	1430	93	93	98	97	99	97	97	103	104	109	102	100
46	1500	96	95	100	101	100	100	101	107	108	109	105	103
50	1600	95	95	100	100	100	101	100	105	103	113	108	103
54	1630	95	95	100	100	101	100	99	109	108	113	105	108
62	1700	100	100	105	104	104	104	104	109	109	116	109	107
68	1730	101	102	107	107	106	107	107	115	111	116	108	109
74	1800	104	104	110	109	109	109	109	113	115	116	109	109
78	1900	103	103	109	107	107	108	108	113	113	113	115	108
86	2000	101	101	105	105	103	105	105	101	113	101	107	102
92	2100	97	97	100	99	99	100	100	97	96	96	101	109
98	2200	94	93	96	94	94	95	95	94	84	99	94	95
106	2300	93	93	91	90	90	91	92	100	82	86	87	93
112	2400	90	89	88	88	88	89	88	86	86	95	86	90
118	100	88	87	85	86	85	86	86	93	82	82	86	89
124	200	88	88	83	85	83	84	85	90	82	82	89	87
130	300	85	84	81	82	80	82	82	80	86	80	82	86
136	400	84	85	80	81	80	81	82	84	85	85	86	83
142	500	83	82	80	80	79	80	80	76	76	81	86	86
148	600	82	80	78	78	78	78	79	77	80	82	80	83
154	700	80	78	74	74	74	75	76	76	81	76	73	80
160	800	80	80	80	78	80	78	78	80	88	82	81	79
166	830	82	82	83	82	84	81	82	84	91	82	84	86
172	900	83	84	88	83	88	82	84	90	100	100	86	87
178	930	85	85	95	87	91	86	86	100	103	101	89	89
184	1000	87	88	98	92	97	92	95	101	107	104	95	107
190	1030	93	94	103	99	101	98	99	104	111	112	100	101
196	1100	97	97	108	104	105	103	104	116	116	115	105	107
202	1130	101	101	113	107	109	107	108	111	116	120	110	113
208	1200	105	104	117	111	115	112	113	115	126	126	113	114
214	1230	106	107	120	115	116	114	115	126	126	124	117	115
220	1300	109	109	122	117	118	117	118	125	127	123	121	118
226	1330	110	109	124	118	120	119	120	128	129	128	124	116
232	1400	111	112	126	120	121	120	120	128	133	127	122	120
238	1430	113	113	127	122	123	121	122	129	134	133	124	128
244	1500	114	113	128	122	123	122	124	130	132	134	124	120
250	1530	115	115	129	123	124	124	123	129	140	140	122	132

256	1600	115	116	129	124	124	123	125	127	128	136	123	117
262	1630	115	116	129	124	124	124	125	127	126	136	123	122
268	1700	116	116	128	124	124	124	124	129	128	128	124	120
274	1730	115	115	128	123	123	123	122	129	122	*	*	121
280	1800	113	114	125	121	121	121	120	124	121	124	121	122
286	1900	109	109	120	116	116	116	115	115	111	120	114	115
290	2000	103	103	111	107	108	108	108	107	107	109	107	110
296	2100	96	95	103	100	98	100	100	101	100	97	101	105
302	2200	94	93	97	95	94	94	95	93	84	93	99	95
308	2300	91	90	92	90	90	91	91	93	88	92	90	84
314	2400	88	88	88	87	86	88	88	88	88	88	88	92
320	100	88	87	86	84	84	86	86	87	83	88	84	84
326	200	86	86	84	83	83	84	84	85	80	86	86	86
332	300	86	86	82	82	82	82	82	84	86	81	81	83
340	400	84	84	80	81	80	81	81	80	79	80	82	88
346	500	82	82	78	80	78	80	80	79	80	80	78	82
352	600	80	80	74	77	77	78	78	75	80	79	75	80
358	700	81	80	78	78	77	78	80	77	82	76	77	80
364	730	82	80	80	80	79	80	79	78	86	80	76	82
370	800	82	81	81	80	82	79	80	82	90	88	80	84
376	830	82	82	84	85	85	82	82	88	90	100	86	86
382	900	85	84	88	86	88	85	87	88	100	113	86	86
388	930	86	86	93	90	93	88	89	96	101	99	94	100
394	1000	88	88	97	92	95	92	93	102	105	105	93	104
400	1030	93	91	102	98	100	97	97	102	114	109	100	104
406	1100	93	93	106	100	103	97	99	109	113	111	103	102
412	1130	97	97	111	103	106	103	104	113	122	111	107	107
418	1200	97	97	114	105	109	105	108	117	120	120	110	107
424	1230	100	100	118	110	113	109	110	115	128	123	109	107
430	1300	102	103	120	113	115	113	113	120	126	129	115	110
436	1330	102	103	123	114	115	113	115	122	126	124	115	117
442	1400	107	107	124	117	118	117	117	122	126	128	117	119
448	1430	108	107	126	117	118	117	118	126	133	122	126	115
454	1500	107	107	127	118	120	118	119	125	132	141	126	119
460	1530	109	109	128	121	121	120	121	128	128	140	126	121
466	1600	110	111	130	122	122	121	122	127	135	141	122	125
472	1630	111	113	130	122	122	122	122	127	138	122	122	126
478	1700	111	111	130	122	121	122	122	128	132	131	122	117
484	1730	111	111	129	122	121	122	122	128	126	134	126	123
490	1800	111	111	127	121	120	121	120	126	132	132	124	120
496	1830	111	111	125	120	118	120	120	125	121	124	115	120
502	1900	109	110	122	117	117	118	118	*	*	120	116	116
508	2000	105	104	114	111	111	111	111	109	112	113	111	113

T-38 High Temperature Evaluation Data (26, 27, 28 August 1960)

CN	TIME	2-15	2-16	2-17	2-18	2-19	2-20	2-21	2-22	2-23	2-24	2-25	2-26
		AIR	AIR	FWD	SURF	SURF	SURF	SURF	SURF	SURF	SURF	SURF	SURF
		TEMP	TEMP	C/P	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP
		DNSTR	DNSTR	AIR	WINDSH	WINDSH	WINDSH	WINDSH	WINDSH	WINDSH	WINDSH	WINDSH	WINDSH
		MOIST	HOT	IN	RASF	RASF	RASF	RASF	RASF	RASF	RASF	RASF	RASF
		SEP	COLD	TEMP	CENT	CENT	CENT	CENT	CENT	CENT	CENT	CENT	CENT
		ANTI-	JUNC										
		ICF											
		VAL											
2	930	93	96	88	105	105	107	103	101	100	100	99	101
6	1000	96	95	90	112	115	105	109	101	113	99	97	107
10	1030	87	95	93	115	116	109	113	107	109	103	103	97
14	1100	95	99	100	126	122	123	126	126	116	107	102	102
18	1130	100	101	100	120	120	117	118	118	109	107	105	107
22	1200	100	98	99	120	120	127	128	126	114	109	107	106
26	1230	100	103	101	127	127	126	123	117	116	108	101	105
30	1300	102	107	100	132	126	126	123	117	116	108	107	101
34	1330	101	98	101	118	114	115	113	114	109	108	102	106
38	1400	100	101	100	124	110	122	111	116	102	105	101	107
42	1430	107	101	101	117	107	114	110	112	109	103	100	106
46	1500	107	107	104	122	111	120	112	120	111	108	109	109
50	1600	103	108	103	127	108	126	115	117	113	107	113	112
54	1630	108	101	100	122	108	120	113	115	110	108	108	107
62	1700	105	107	108	121	109	115	111	112	113	108	109	115
68	1730	109	109	109	109	105	112	112	115	109	109	113	115
74	1800	109	112	111	115	109	114	113	111	113	113	120	107
78	1900	111	107	108	107	113	109	106	109	113	108	117	115
86	2000	103	100	102	101	107	107	99	101	101	105	101	101
92	2100	104	102	96	94	94	100	93	94	100	95	97	100
98	2200	95	96	90	81	86	88	84	86	89	78	87	82
106	2300	87	88	86	84	83	86	80	82	87	80	86	88
112	2400	93	89	84	85	86	84	80	88	84	85	90	88
118	100	88	82	82	86	82	84	79	86	85	78	76	86
124	200	84	90	80	81	85	81	78	80	84	80	76	86
130	300	86	80	80	74	82	80	77	81	81	82	78	76
136	400	85	84	80	80	80	78	73	80	80	86	74	82
142	500	83	82	76	75	77	80	73	80	80	71	77	73
148	600	81	86	75	75	70	73	69	78	80	71	77	73
154	700	78	79	71	74	81	78	81	80	85	70	82	87
160	800	83	86	79	90	97	93	101	90	93	88	90	99
166	830	83	87	82	103	107	103	107	101	99	90	101	100
172	900	84	92	86	115	118	111	120	109	114	101	107	107
178	930	92	92	91	121	126	123	126	116	122	109	120	110
184	1000	95	91	95	127	126	123	126	120	121	108	113	126
190	1030	105	101	101	121	121	120	123	118	120	113	111	109
196	1100	102	107	104	129	121	126	126	117	115	110	117	122
202	1130	113	108	109	136	130	123	130	122	122	120	120	128
208	1200	114	107	113	134	135	131	133	129	126	117	127	124
214	1230	114	108	115	141	131	138	132	130	127	133	130	126
220	1300	113	117	118	140	136	130	133	141	127	128	131	120
226	1330	122	122	120	153	136	140	132	140	128	134	130	124
232	1400	120	114	120	140	136	*	*	141	126	130	131	127
238	1430	122	117	123	145	138	141	131	136	130	135	138	132
244	1500	128	120	124	141	134	138	131	137	127	133	128	133

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CN	TIME	2-27 SURF TEMP	2-28 SURF TEMP	2-29 SURF TEMP	3-1 PILOT FOOT TEMP	3-2 PILOT WAIST TEMP UNSH	3-3 PILOT WAIST TEMP SH	3-4 PILOT HEAD TEMP	3-5 STUD FOOT TEMP	3-6 STUD WAIST TEMP UNSH	3-7 STUD WAIST TEMP SH	3-8 STUD HEAD TEMP	3-10 AMB TEMP AFT ELECT COMP RH
2	930	88	87	87	95	93	113	100	90	92	83	94	89
6	1000	92	96	90	100	99	109	104	100	88	102	100	90
10	1030	101	105	101	100	101	101	100	101	96	101	100	87
14	1100	101	105	105	100	101	110	97	100	103	103	101	99
18	1130	94	101	101	103	104	113	101	100	100	109	101	99
22	1200	101	103	99	103	101	109	107	101	103	109	105	101
26	1230	100	95	100	102	100	100	101	101	100	105	113	113
30	1300	97	96	105	105	104	101	101	105	103	107	107	108
34	1330	101	101	97	101	113	107	103	102	107	107	113	105
38	1400	100	101	100	107	112	105	104	101	107	103	101	107
42	1430	102	101	96	105	113	107	106	107	101	106	104	107
46	1500	107	107	108	104	117	107	108	103	103	105	109	111
50	1600	111	108	108	116	117	107	107	104	108	108	113	116
54	1630	109	114	109	109	107	103	103	106	107	113	107	111
62	1700	106	107	113	107	123	116	123	111	120	120	117	110
68	1730	113	114	107	111	114	117	122	108	113	126	118	112
74	1800	113	113	111	109	113	117	128	113	114	113	115	113
78	1900	115	116	115	109	111	108	114	112	109	118	115	121
86	2000	113	106	107	107	105	101	115	106	107	104	102	100
92	2100	102	103	99	100	99	97	101	100	101	100	101	101
98	2200	103	105	100	88	93	89	91	93	93	92	100	90
106	2300	101	95	93	89	90	91	88	86	95	86	95	95
112	2400	95	91	104	86	86	84	89	87	89	86	90	87
118	100	93	88	92	88	88	84	89	84	87	85	91	88
124	200	87	87	87	82	85	87	82	87	84	86	87	87
130	300	93	86	88	83	86	80	84	83	87	82	86	82
136	400	84	86	88	86	85	80	86	82	86	81	82	88
142	500	88	88	88	86	80	76	84	82	86	80	82	82
148	600	86	84	82	80	75	75	78	80	76	81	78	81
154	700	77	73	71	74	80	76	92	82	77	75	81	75
160	800	82	79	71	77	89	85	103	87	83	100	99	86
166	830	82	84	80	84	94	113	110	90	84	107	107	93
172	900	84	93	82	88	101	126	124	88	95	122	120	88
178	930	90	92	87	91	112	122	127	101	101	126	125	100
184	1000	95	99	100	97	113	120	131	107	107	128	124	95
190	1030	102	105	103	105	115	120	128	107	113	129	126	101
196	1100	113	107	113	113	120	126	136	103	118	129	127	103
202	1130	109	114	111	113	120	125	142	108	122	130	134	107
208	1200	120	118	120	116	127	126	153	114	125	134	141	111
214	1230	122	126	122	115	127	127	153	120	120	140	146	112
220	1300	124	120	128	122	130	129	149	119	134	142	145	115
226	1330	128	124	133	126	138	134	147	125	136	153	142	125
232	1400	123	127	134	128	138	130	146	120	131	140	142	126
238	1430	124	124	133	126	146	124	153	122	135	136	142	126
244	1500	130	133	136	130	140	138	148	122	134	142	148	128
250	1530	128	130	132	122	148	136	155	122	140	140	142	126

256	1600	130	139	132	125	142	139	142	116	134	130	147	126
262	1650	129	133	132	126	140	131	149	126	134	133	142	133
268	1700	134	134	130	124	143	134	149	*	*	134	134	122
274	1750	128	129	128	127	126	124	134	122	129	128	136	126
280	1800	129	126	124	121	122	129	131	122	124	128	128	121
286	1900	125	120	114	114	117	120	126	120	120	117	117	126
290	2000	113	110	114	105	108	109	114	105	112	108	115	109
296	2100	105	105	104	100	96	108	103	108	100	108	107	101
302	2200	101	97	99	94	88	91	100	99	97	99	97	94
308	2300	90	101	100	94	87	95	103	100	93	96	100	90
314	2400	93	100	100	87	84	88	86	86	89	87	88	89
320	100	93	88	88	87	88	88	87	88	93	83	89	89
326	200	92	86	86	86	85	84	100	86	86	82	81	93
332	300	83	86	86	83	82	80	86	80	81	81	85	82
340	400	85	86	84	78	80	80	86	80	80	86	83	84
346	500	86	86	83	80	78	78	80	80	86	76	78	81
352	600	81	83	80	76	73	74	76	80	77	78	76	82
358	700	86	86	76	80	82	76	83	78	80	82	100	80
364	750	80	78	74	80	82	82	90	84	84	84	87	80
370	800	86	73	74	84	88	81	107	84	84	101	103	80
376	850	84	78	77	88	100	113	120	86	88	113	104	84
382	900	89	88	86	89	99	107	116	94	88	116	109	87
388	950	89	95	100	101	101	115	113	96	107	113	121	90
394	1000	100	100	95	100	107	122	133	100	107	122	120	88
400	1050	105	107	102	99	116	126	134	103	113	122	130	100
406	1100	109	107	107	113	116	124	141	102	114	140	137	99
412	1150	113	113	113	107	121	130	145	109	117	144	136	107
418	1200	120	117	118	118	124	126	153	110	128	146	142	109
424	1250	120	121	117	114	123	126	153	112	138	145	142	120
430	1300	126	126	132	120	130	117	153	115	130	148	146	112
436	1350	128	126	122	120	138	129	160	123	140	142	153	120
442	1400	127	128	130	120	131	130	154	113	138	140	153	115
448	1450	134	128	131	122	145	140	159	120	139	138	148	116
454	1500	123	129	140	124	145	134	150	118	132	134	147	120
460	1550	129	134	134	120	154	140	153	136	145	136	146	121
466	1600	132	133	134	128	147	141	150	117	134	138	145	123
472	1650	129	134	132	117	147	138	146	124	156	140	145	126
478	1700	130	131	124	124	147	127	142	127	142	142	142	122
484	1750	140	134	132	117	134	134	140	120	138	140	138	128
490	1800	130	128	128	126	123	128	138	126	128	128	132	122
496	1850	126	133	132	119	123	128	129	118	128	128	126	117
502	1900	125	126	117	120	118	121	123	115	122	126	124	120
508	2000	113	119	115	115	112	113	116	115	115	120	109	108

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CN	TIME	3-11	3-12	3-13	3-14	3-15	3-16	3-17	3-18	3-19	3-20	3-21	3-22
		AMR	AMR	AMR	AMR	AMR	AMR	UTIL	UTIL	UTIL	UTIL	UTIL	FLT
		TEMP	TEMP	TEMP	TEMP	TEMP	TEMP	UTIL	UTIL	UTIL	UTIL	UTIL	FLT
		AFT	AFT	FWD	FWD	FWD	FWD	IN	OUT	IN	IN	IN	CONT
		FLECT	FLECT	FLECT	FLECT	FLECT	FLECT	UTIL	UTIL	UTIL	UTIL	UTIL	CONT
		COMP	COMP	COMP	COMP	COMP	COMP	UTIL	UTIL	UTIL	UTIL	UTIL	PUMP
		LH	STA	RH	RH	LH	RH	TEMP	TEMP	TEMP	TEMP	TEMP	TEMP
		282	277	103.5	112	125	125						
2	930	95	101	90	105	103	100	88	94	89	89	84	84
6	1000	93	101	107	108	108	95	91	90	93	90	86	84
10	1030	90	103	102	108	104	97	92	91	90	92	88	87
14	1100	103	101	107	113	107	103	95	94	100	96	90	88
18	1130	101	103	105	107	107	102	97	97	103	98	93	92
22	1200	102	101	109	113	107	102	98	94	107	97	94	93
26	1230	97	104	109	111	101	109	97	97	105	96	95	94
30	1300	101	107	107	116	101	108	99	97	101	97	94	95
34	1330	103	101	107	114	103	103	98	97	103	99	98	98
38	1400	100	101	107	110	103	107	99	97	101	99	99	97
42	1430	100	100	108	112	101	104	99	98	101	99	100	100
46	1500	108	101	117	110	106	105	101	100	105	100	104	102
50	1600	106	107	111	108	104	109	100	98	103	99	105	103
54	1630	103	104	122	120	111	120	101	99	104	100	107	103
62	1700	108	105	113	118	113	109	103	103	109	103	107	105
68	1730	107	115	113	110	109	111	107	106	104	107	109	107
74	1800	110	115	114	115	115	111	109	108	110	109	111	110
78	1900	109	115	113	116	113	113	107	107	105	107	109	108
86	2000	107	102	101	103	107	102	103	102	109	103	104	103
92	2100	98	101	100	103	105	103	98	98	103	98	99	97
98	2200	99	90	95	92	88	90	93	90	90	88	91	89
106	2300	96	93	86	84	88	88	89	89	89	88	89	87
112	2400	100	95	86	86	92	90	86	86	86	86	87	86
118	100	92	92	78	86	86	88	84	85	88	84	84	83
124	200	87	86	86	87	78	93	82	82	89	82	82	82
130	300	87	87	76	82	86	81	81	81	88	81	81	81
136	400	89	83	76	83	86	86	81	81	92	90	90	80
142	500	84	84	82	80	76	82	79	79	92	78	79	78
148	600	86	80	86	79	86	80	78	78	79	77	77	77
154	700	76	75	73	77	86	75	74	73	77	74	73	73
160	800	82	89	80	86	83	80	80	80	76	80	78	77
166	830	89	90	80	93	89	83	83	83	89	84	82	80
172	900	84	100	90	100	90	94	87	87	89	87	84	83
178	930	91	99	94	109	100	93	90	90	95	90	86	80
184	1000	96	103	107	110	103	100	96	95	101	96	92	90
190	1030	103	102	107	113	106	105	100	100	100	101	98	98
196	1100	103	107	105	120	113	113	105	103	103	105	102	102
202	1130	107	114	115	121	116	115	109	109	108	109	106	106
208	1200	115	120	120	128	126	120	113	113	114	112	111	111
214	1230	115	116	121	128	122	121	115	115	115	115	114	113
220	1300	125	125	126	132	121	124	117	117	120	117	117	116
226	1330	124	121	123	134	124	123	119	118	122	118	118	118
232	1400	126	126	128	132	122	124	120	120	121	120	120	120
238	1430	132	125	133	136	126	123	122	121	124	121	122	122
244	1500	124	124	134	144	126	130	122	121	127	122	122	122
250	1530	122	126	136	140	129	133	124	122	122	123	124	124

256	1600	125	124	126	134	130	136	124	124	126	123	126	124	124	124
262	1630	124	127	130	132	128	122	124	123	125	125	126	123	124	124
268	1700	126	118	133	140	126	153	124	123	129	122	125	124	124	124
274	1740	121	117	129	130	123	133	122	122	122	122	125	123	123	123
280	1800	121	114	130	124	122	122	120	120	126	120	122	121	121	121
286	1900	116	117	121	118	125	118	115	115	118	114	117	116	116	116
290	2000	102	113	107	109	108	113	107	106	107	106	107	106	107	106
296	2100	102	96	101	93	101	96	97	96	107	95	95	95	95	96
302	2200	103	100	93	95	94	95	93	91	95	91	91	91	91	92
308	2300	97	93	88	84	92	95	89	89	88	89	89	89	89	89
314	2400	90	92	88	88	88	100	86	86	87	87	86	86	86	86
320	100	88	90	83	83	89	88	84	84	83	84	84	84	84	84
326	200	88	88	87	88	84	86	83	84	83	83	83	83	83	83
332	300	88	86	87	82	82	87	82	82	85	81	81	81	82	82
340	400	87	86	84	78	76	85	80	80	85	80	79	79	79	79
346	500	82	85	82	87	78	80	79	78	85	78	78	78	78	78
352	600	82	82	77	88	78	78	76	76	78	76	76	76	76	76
358	700	82	86	80	80	78	80	78	80	75	78	77	77	77	76
364	740	87	86	80	79	92	80	80	80	80	80	78	78	78	78
370	800	84	84	82	82	84	85	82	82	83	82	78	78	78	78
376	840	86	88	82	96	92	89	86	86	88	85	81	81	81	81
382	900	94	91	84	99	96	84	88	87	92	88	84	84	84	84
388	930	100	101	95	108	99	93	92	92	100	92	88	88	88	88
394	1000	97	99	99	115	102	100	95	95	103	95	90	90	90	90
400	1030	107	107	108	110	108	107	99	99	102	99	97	96	97	97
406	1100	98	103	113	118	116	107	101	100	102	100	97	97	97	97
412	1130	113	108	114	127	111	108	105	105	105	106	102	101	101	101
418	1200	113	113	114	125	120	116	107	108	113	108	105	105	105	105
424	1230	113	109	113	132	122	121	111	111	115	111	109	109	109	109
430	1300	122	113	126	127	120	120	115	114	116	113	112	112	112	112
436	1330	126	117	127	132	122	123	115	115	121	115	113	113	113	113
442	1400	115	115	128	132	126	128	117	117	117	117	118	117	117	117
448	1430	118	122	123	138	133	128	118	117	122	117	118	117	117	117
454	1500	123	120	132	132	128	129	118	118	121	119	120	119	119	119
460	1530	121	121	125	138	122	129	120	120	121	119	121	120	120	120
466	1600	126	128	127	130	123	131	122	120	122	120	123	122	122	122
472	1630	122	125	130	140	124	130	122	121	117	120	126	124	124	124
478	1700	126	121	132	133	129	128	122	121	122	120	124	124	124	124
484	1730	122	122	128	124	124	122	120	121	123	120	124	122	122	122
490	1800	120	117	128	123	126	127	120	119	124	119	122	122	122	122
496	1830	118	120	117	129	127	126	118	120	118	117	121	121	121	121
502	1900	120	117	117	117	116	120	116	116	120	116	118	118	118	118
508	2000	114	113	108	112	117	113	109	109	113	108	111	111	111	108

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CN	TIME	3-23 FLT CONT RES IN OIL TEMP	3-24 FLT CONT IN OIL TEMP R-RUN CYL	3-25 FLT CONT OUT OIL TEMP R-RUN CYL	3-26 FLT CONT COOL IN OIL TEMP	3-27 SKIN TEMP LEFT AILER DOOR 28	3-28 AMB TEMP LEFT AILER ACT	3-29 CASE TEMP LEFT AILER ACT	5-1 AC ALT COOL AIR IN TEMP	5-2 AC ALT COOL AIR OUT TEMP	5-3 AMB TEMP ALT	5-4 AC FRAME TEMP	5-5 FUEL TEMP A/B FLOW METER
2	930	83	87	86	83	93	92	100	92	93	93	86	87
6	1000	84	90	88	86	97	95	103	94	93	91	88	88
10	1030	87	90	90	87	101	98	107	95	95	93	90	90
14	1100	88	93	93	89	104	103	113	97	99	96	93	93
18	1130	92	96	97	92	109	110	114	100	99	98	94	97
22	1200	93	97	97	94	106	107	113	100	98	99	95	97
26	1230	93	99	98	94	109	109	117	99	97	100	95	98
30	1300	96	101	101	95	109	113	118	105	100	97	97	100
34	1330	97	101	101	97	105	107	109	100	103	101	97	98
38	1400	98	102	102	98	107	108	119	102	102	101	98	98
42	1430	100	102	102	100	106	107	109	103	102	101	100	99
46	1500	103	107	108	104	109	113	115	104	103	101	100	101
50	1600	102	107	107	103	108	111	113	105	104	101	100	100
54	1630	106	107	107	106	105	107	109	112	107	108	103	100
62	1700	107	109	109	107	105	107	109	107	107	113	105	106
68	1730	109	111	111	109	108	109	109	109	114	109	108	108
74	1800	109	109	109	108	105	107	108	107	112	105	105	107
78	1900	103	104	103	103	100	101	107	107	108	101	103	103
86	2000	98	97	97	97	97	95	99	101	101	101	99	99
92	2100	92	89	90	88	86	84	89	97	95	92	94	93
98	2200	88	86	86	87	85	84	90	92	110	115	107	89
106	2300	86	84	84	86	83	87	87	89	100	100	100	87
112	2400	83	81	82	83	81	81	89	86	90	95	90	84
118	2500	82	81	80	82	80	80	82	86	88	89	83	82
124	3000	81	80	80	80	79	79	82	85	85	85	81	82
130	4000	79	76	76	78	76	76	86	84	86	83	80	80
136	5000	77	75	75	76	76	74	82	82	81	86	80	78
142	6000	73	71	71	73	73	74	73	80	82	82	78	74
148	7000	78	77	77	76	80	78	79	80	80	86	76	74
154	8000	80	82	81	80	86	83	83	86	86	87	78	78
160	9000	82	84	84	82	91	88	93	89	93	87	86	85
166	9300	84	89	88	85	98	94	100	92	96	100	90	90
172	10000	90	94	94	90	102	100	103	100	99	91	93	94
178	10300	98	101	100	97	105	104	107	105	100	98	98	100
184	11000	102	105	104	102	109	109	112	107	102	104	103	103
190	11300	107	109	109	107	113	113	126	109	106	107	107	109
202	12000	111	113	113	111	117	117	122	116	113	114	111	112
208	12300	113	116	116	113	118	120	122	115	113	123	113	115
214	13000	116	118	120	117	121	122	126	118	117	116	116	117
220	13300	118	122	121	118	121	124	130	120	120	118	117	120
226	14000	120	122	123	120	123	125	124	128	122	120	119	120
232	14300	121	124	124	122	124	126	130	126	126	121	120	121
238	15000	122	124	125	123	124	126	132	122	128	123	121	122
244	15300	125	126	126	123	125	126	125	123	123	126	122	123

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CN	TIME	5-6 FRAME TEMP VOLT REG	5-7 SURF TEMP STAR ACT BEAR	5-8 AIR TEMP PRESS UTIL SYN HYD RES	5-9 RATT COMP AMP TEMP	5-10 RATT TERM TEMP	5-11 AFT C/P IN TEMP	5-13 ROTT SFAT RFM TEMP	5-14 MID SFAT REM TEMP	5-15 TOP SFAT REM TEMP	5-16 CAN RFM TEMP
2	930	88	86	100	95	86	90	86	100	95	88
6	1000	89	88	101	101	88	100	88	90	95	90
10	1030	90	90	100	102	91	95	89	99	101	91
14	1100	95	93	99	109	94	97	93	97	107	95
18	1130	97	97	102	107	103	100	95	101	101	100
22	1200	95	97	101	108	103	102	96	100	101	100
26	1230	96	100	102	116	100	97	96	96	105	100
30	1300	97	98	103	109	102	108	98	101	102	103
34	1330	98	99	103	110	105	105	99	107	103	104
38	1400	98	99	102	115	107	103	100	103	104	102
42	1430	99	100	101	108	107	104	101	103	103	101
46	1500	101	101	105	113	111	104	102	108	107	101
50	1600	100	100	100	116	114	109	102	107	103	100
54	1630	100	100	105	120	109	109	102	109	109	103
62	1700	103	103	108	113	111	113	105	109	113	106
68	1740	106	107	107	115	113	109	107	117	117	108
74	1800	108	108	113	116	111	109	110	115	115	109
78	1900	107	107	108	115	111	109	110	115	115	108
86	2000	103	103	105	107	105	103	105	102	112	103
92	2100	99	99	101	103	99	101	100	99	103	98
98	2200	95	93	95	100	94	97	95	91	97	93
106	2300	91	89	91	94	90	89	90	88	95	90
112	2400	88	87	86	92	88	84	88	93	88	87
118	100	86	84	88	88	84	92	84	89	82	84
124	200	84	82	83	82	82	84	84	85	84	84
130	300	82	81	82	82	82	86	82	87	81	82
136	400	82	81	86	86	80	82	81	84	84	82
142	500	80	78	80	86	78	80	80	84	89	80
148	600	80	78	80	78	77	85	78	80	78	78
154	700	75	73	78	71	71	82	73	80	78	73
160	800	79	78	82	82	74	80	78	84	87	78
166	830	82	82	85	90	80	86	82	86	93	83
172	900	86	86	89	93	84	88	86	86	107	88
178	930	89	90	97	99	89	95	92	101	110	93
184	1000	94	96	99	102	94	101	98	113	113	100
190	1030	99	100	103	108	100	107	103	109	121	105
196	1100	102	105	106	110	105	107	107	115	126	109
202	1130	107	108	113	122	110	111	113	114	127	114
208	1200	110	113	117	122	115	111	120	123	130	118
214	1230	115	115	113	117	118	120	120	126	127	121
220	1300	116	117	124	128	121	124	122	132	128	126
226	1330	118	118	121	128	123	120	125	133	141	126
232	1400	119	120	122	130	124	126	126	134	141	127
238	1430	120	121	123	136	126	126	128	140	144	128
244	1500	122	121	123	130	128	122	129	136	142	129
250	1530	122	124	126	134	130	130	130	140	146	130

256	1600	122	124	120	132	129	124	130	138	140	130
262	1630	122	124	120	132	128	126	130	134	138	128
268	1700	125	127	124	133	127	126	128	131	138	126
274	1730	121	122	122	118	129	122	126	132	134	125
280	1800	120	120	122	117	126	122	125	127	125	123
286	1900	115	115	115	117	117	114	119	117	121	117
290	2000	108	107	105	112	107	112	111	114	112	107
296	2100	100	99	102	109	101	106	102	107	104	100
302	2200	96	94	93	102	95	99	96	98	98	94
308	2300	91	90	89	88	90	91	91	99	90	89
314	2400	88	86	88	93	87	92	88	90	90	88
320	100	86	86	86	87	86	87	86	93	87	86
326	200	85	83	84	87	83	92	84	76	88	84
332	300	84	81	82	86	81	86	82	86	88	82
340	400	81	80	79	82	79	86	80	80	86	79
346	500	80	78	81	75	78	82	79	84	86	78
352	600	78	76	78	87	76	78	76	80	85	76
358	700	78	77	80	79	76	80	78	76	81	77
364	730	78	79	82	80	77	77	78	79	82	78
370	800	80	80	88	82	78	80	81	89	92	80
376	830	82	84	87	88	82	88	84	90	90	85
382	900	86	86	93	100	84	92	87	97	108	88
388	930	88	90	97	100	88	93	92	97	101	93
394	1000	93	93	100	108	93	95	97	102	114	99
400	1030	97	98	103	105	99	101	101	113	118	103
406	1100	101	101	105	122	102	102	107	110	129	109
412	1130	105	106	109	120	108	112	111	120	129	112
418	1200	107	109	110	120	111	114	115	120	135	115
424	1230	111	115	114	126	116	118	118	127	135	119
430	1300	114	114	119	127	118	118	121	132	140	123
436	1330	116	115	122	134	120	120	124	133	141	124
442	1400	117	118	118	133	124	118	125	129	140	126
448	1430	118	118	122	134	124	125	126	136	145	127
454	1500	119	118	120	132	126	122	128	136	145	128
460	1530	120	120	127	132	128	126	129	132	140	130
466	1600	121	121	122	136	128	126	130	140	140	130
472	1630	122	122	120	134	130	134	130	140	142	129
478	1700	121	121	122	136	129	125	128	135	146	128
484	1730	120	121	122	133	128	133	128	130	141	126
490	1800	120	120	120	128	126	134	126	132	134	124
496	1830	118	118	118	128	124	120	124	123	125	121
502	1900	115	115	115	114	121	118	122	120	133	118
508	2000	110	110	112	115	112	109	113	112	114	111

APPENDIX D

FLIGHT TEST DATA

Selected data from two flights, Flight Test numbers 10 and 11, made by NALF at El Centro, California, September 3rd and 4th, respectively, are presented in this appendix. Flight Test number 10 was conducted at maximum military power at 2500 feet, and at best cruise airspeed and maximum endurance airspeed at 20,000 feet. Flight Test number 11 was conducted at best cruise airspeed at altitudes of 20,000 and 35,000 feet. The static temperature survey (ambient air temperatures and solar radiation for both flights) is presented in graphic form.



Figure 7. Solar Radiation and Ambient Air Temperatures (3 September 1960).

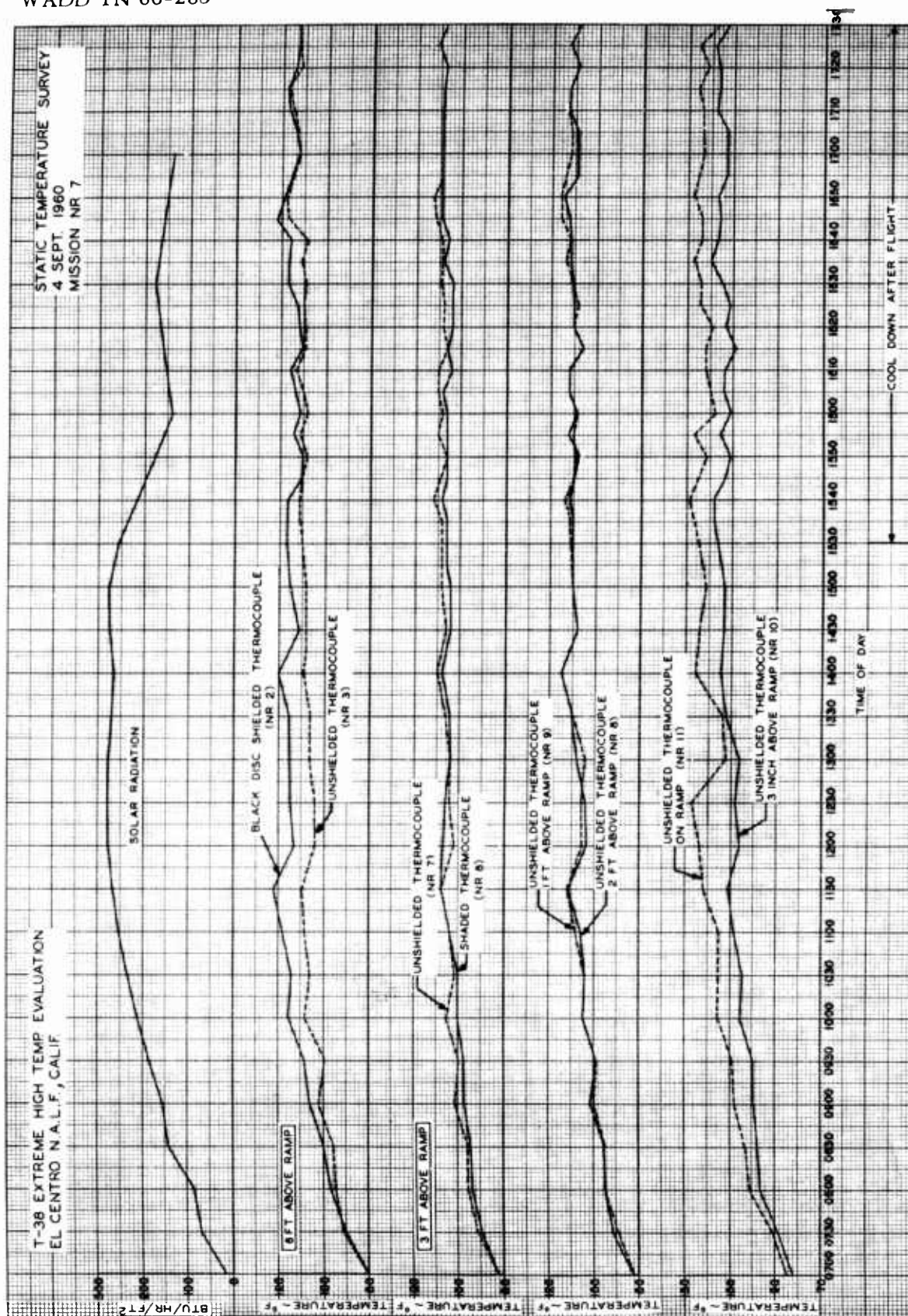


Figure 8. Solar Radiation and Ambient Air Temperatures (4 September 1960).

T-38 HIGH TEMP EVALUATION
EL CENTRO, CALIFORNIA
3 SEPTEMBER 1960
FLIGHT TEST NR 10

T-38 High Temperature Evaluation Data, Flight Nr 10 (3 September 1960)

CN	FLAP TIME	1-4 AIR SPEED	1-5 ALT	1-7 EXH GAS TEMP	1-8 TACH SPEED	1-10 MAIN FUEL FLOW	1-11 STAT REF PRESS	1-12 COMP AIR PRESS	1-15 FUEL PRESS IN-ENG PUMP	1-16 FUEL PRESS MAIN ENG LINE	1-17 OIL PRESS IN-ENG PUMP
	MIN	KNOTS	FEET	EGT	RPM	LBS/HR	PSID	PSID	PSID	PSIG	PSID
56	• X	570	2310	620	16371	2800	•XXX	•XXX	•XX	403	•XXX
58	2	570	2210	620	16201	2800	698	6648	2014	409	385
60	4	568	2310	620	16320	2800	734	6660	2111	421	583
62	6	565	2140	620	16218	2800	657	6561	2102	424	451
64	8	563	2180	620	16167	2800	633	6685	2093	421	660
66	10	560	2210	620	16235	2800	674	6685	2128	421	275
68	22	565	2310	620	16201	2800	633	6412	2098	425	374
70	24	565	2080	620	16235	2800	633	6326	2111	446	561
72	26	570	2110	620	16320	2800	663	6338	2058	446	891
74	28	570	2310	620	16286	2800	651	6400	2054	439	660
76	30	570	2110	620	16320	2800	651	6524	2080	442	495
78	42	570	2080	620	16490	2800	663	6350	2001	440	660
80	44	570	2240	620	16286	2800	663	6350	2089	450	902
82	46	570	1980	620	16337	2800	609	6350	2023	446	693
84	48	565	2110	620	16218	2800	639	6375	2071	461	726
86	50	560	2310	620	16490	2800	609	6375	2045	450	913
88	62	560	2380	620	16286	2800	609	6177	2159	453	770
90	64	560	2210	620	16218	2800	651	6450	2089	471	814
92	66	560	2440	620	16218	2800	663	6313	2141	460	814
94	68	560	2410	620	16218	2800	633	6227	2124	461	869
96	70	560	2570	620	16456	2800	651	6437	2102	462	1001
98	72	560	2510	620	16150	2800	639	6350	2102	467	979
100	74	560	2410	620	16150	2800	610	6264	2124	471	1012
102	76	560	2770	620	16269	2800	609	6561	2111	458	869
104	78	570	2770	620	16065	2800	663	6412	0-	468	825
106	80	570	2570	620	16320	2800	609	6326	2102	468	1001
108	92	565	2410	620	16354	2800	609	6375	2124	476	990
110	94	565	2310	620	16388	2800	651	6375	2111	463	1155
112	96	570	2440	620	16235	2800	639	6301	2102	462	1012
114	98	570	2440	620	16388	2800	627	6301	2111	468	814
116	100	570	2410	620	16320	2800	597	6561	2124	466	1100
118	102	570	2310	620	16252	2800	639	6128	2133	460	1001
120	104	570	2310	620	16201	2800	597	6202	2133	474	1012
136	154	345	20600	470	16354	2800	597	6301	2124	462	869
138	164	345	20400	470	14858	1000	2486	2017	2049	235	1551
140	174	345	20400	470	14654	1000	2458	2315	2102	214	1595
142	184	345	20450	470	14756	1000	2504	2364	2115	230	1650
144	194	340	20500	470	14858	1000	2486	2476	2093	220	1595
146	204	340	21000	470	14773	1000	2510	2352	2071	223	1595
148	214	340	20250	470	14773	1000	2492	2364	2102	214	1617
150	224	340	20350	470	14637	1000	2486	2476	2084	223	1551
		340	20550	470	14671	1000	2486	2352	2089	223	1540

152	234	342	20500	470	14654	1000	2486	2476	2102	209	1551
154	244	345	20500	480	14790	1000	2433	2537	2115	218	1540
156	254	345	20550	480	14671	1000	2445	2476	2133	212	1562
158	264	345	20500	480	14620	1000	2438	2476	2102	202	1507
160	274	320	20500	480	13770	1000	2764	2042	2089	164	1881
162	284	250	20200	410	13651	1000	2445	1361	2080	140	1650
164	294	240	20000	430	13940	1000	2504	1250	2133	150	1650
166	304	240	20700	430	14076	1000	2450	1163	2089	173	1672
168	314	235	20250	430	13974	1000	2521	1337	2119	155	1584
170	324	240	20300	420	13736	1000	2468	1287	2089	161	1584
172	334	235	20550	420	*	1000	2492	1275	2089	163	1738
174	344	240	20500	420	13872	1000	2445	1213	2115	161	1650
176	354	238	20800	420	13957	1000	2510	1448	2089	176	1760
178	364	240	20400	420	13974	1000	2492	1275	2115	161	1628
180	374	240	20500	420	13753	1000	2468	1275	2098	176	1705
182	384	245	20900	420	13838	1000	2468	1423	2071	173	1672
184	394	242	20300	420	14008	1000	2504	1361	2115	161	1573
186	404	240	20150	420	14042	1000	2450	1324	2133	153	1562
188	414	238	21000	420	13974	1000	2521	1337	2089	164	1628

T-38 High Temperature Evaluation Data, Flight Nr 10 (3 September 1960)

CN	FLAP TIME	1-18	1-20	1-21	1-22	1-23	1-24	1-26	1-27	1-28	4-12
		OIL PRESS	DIFF PRESS	STAT PRESS	TOTAL PRESS	STAT PRESS	TOTAL PRESS	TOTAL PRESS	STAT PRESS	STAT PRESS	D.P. FWD
		OUT	C/P	BLEED	BLEED	COND	COND	RUED	DEF	C/P	FUEL
		ENG PUMP	STAT AIR SENS	AIR DNSTR S-OFF VAL	AIR DNSTR S-OFF VAL	AIR DNSTR HOT COLD JUNC	AIR DNSTR HOT COLD JUNC	RY PASS	DUCT UPSTR NOZ	RAM AIR VAL	CELL AND CAV
MIN	PSIG	PSIG	PSIG	PSID	PSID	PSID	PSIA	PSIG	PSID	PSID	PSID
• X	• XX	• XX	• XX	• X	• XXX	• XXX	• XX	• X	• XX	• XXX	• XXX
56	1881	2200	2187	1178	389-	389-	26	935	72	802	2220
58	1639	2187	531-	1170	389-	389-	32	940	77	768	2325
60	1675	2187	352-	1157	334-	334-	40	909	66	734	2325
62	1630	2239	549-	1153	334-	334-	59	923	66	745	2400
64	1792	2174	626-	1153	361-	361-	62	940	77	768	2227
66	1675	2207	561-	1133	396-	396-	78	930	72	802	2310
68	1657	2128	567-	1153	382-	382-	62	935	62	699	2235
70	1818	2141	525-	1124	355-	355-	57	940	62	699	2250
72	1881	2200	352-	1141	368-	368-	54	928	66	768	2325
74	1550	2200	579-	1170	389-	389-	56	944	68	711	2272
76	1899	2148	710-	1174	375-	375-	47	949	64	711	2272
78	1720	2154	525-	1133	396-	396-	54	940	77	722	2325
80	1738	2174	561-	1170	334-	334-	51	944	57	802	2272
82	1774	2168	465-	1153	389-	389-	32	942	76	699	2280
84	1818	2187	567-	1153	382-	382-	38	940	72	665	2250
86	1756	2148	495-	1141	341-	341-	54	933	51	653	2302
88	1818	2154	626-	1133	278-	278-	44	942	58	699	2257
90	1854	2174	561-	1153	389-	389-	51	944	72	665	2175
92	1792	2148	453-	1108	396-	396-	57	940	58	699	2255
94	1639	2174	579-	1162	382-	382-	51	933	66	711	2152
96	1899	2141	770-	1153	361-	361-	44	940	64	711	2235
98	1827	2148	119-	1174	368-	368-	63	933	51	653	2152
100	1496	2174	525-	1145	403-	403-	62	935	72	676	2250
102	1792	2174	0-	1153	382-	382-	0-	944	66	653	2257
104	1917	2200	358-	1162	396-	396-	48	933	66	653	2257
106	1818	2213	686-	1174	396-	396-	54	942	51	745	2152
108	1891	2200	471-	1149	361-	361-	51	949	68	711	2152
110	1657	2187	298-	1153	292-	292-	44	940	64	665	2280
112	1809	2194	525-	1153	403-	403-	42	940	64	711	2295
114	1792	2194	513-	1124	396-	396-	0-	940	57	699	2280
116	1926	2154	740-	1124	424-	424-	44	940	57	688	2280
118	1489	2154	471-	1166	396-	396-	48	942	51	722	2280
120	1827	2174	806-	1145	389-	389-	48	933	66	745	2055
136	2016	3134	119-	460	34	34	383	408	250	229	3000
138	2096	3193	238-	485	104	104	352	383	241	286	2857
140	2087	3154	131-	-498	0-	0-	338	394	248	229	2700
142	2195	0-	143-	460	7	7	338	376	250	229	2610
144	2051	3154	191-	498	20	20	365	367	266	275	2437

146	204	2257	3199	119-	477	69	344	376	241	240	2250
148	214	2173	3134	0-	469	104	355	359	248	240	2152
150	224	2016	3134	268-	477	104	364	359	248	309	2002
152	234	2186	3193	292-	514	69	384	378	266	263	1852
154	244	1980	3121	119-	460	104	378	336	260	344	1702
156	254	2078	3154	203-	464	48	392	352	241	401	1657
158	264	2150	3199	119-	514	125	399	364	266	321	1522
160	274	1711	3114	167-	361	104	433	251	279	470	1377
162	284	1836	2958	149-	332	76	433	278	252	263	1350
164	294	2150	2932	107-	336	0-	410	171	269	275	1162
166	304	1917	3044	161-	361	20	336	181	252	160	1072
168	314	1818	2997	149-	377	7	262	275	260	195	952
170	324	1621	2997	209-	366	20	288	258	243	149	877
172	334	2060	2971	161-	344	20	313	260	252	149	772
174	344	1899	2997	71-	340	13-	276	258	252	149	697
176	354	2042	2958	77-	344	27	291	275	252	183	652
178	364	2150	3016	226-	373	20-	315	258	254	160	525
180	374	1962	2932	77-	373	48	306	289	262	240	502
182	384	2240	2932	179-	336	0-	330	265	241	149	345
184	394	1917	2997	209-	303	0-	341	251	252	195	382
186	404	1998	2958	173-	344	76	330	284	266	263	322
188	414	1989	2971	71-	319	20	355	242	250	114	202

T-38 High Temperature Evaluation Data, Flight Nr 10 (3 September 1960)

CN	ELAP TIME	4-13 TOTAL PRESS COOL AIR IN ALT	4-14 ALT COMP STAT PRESS	4-15 UTIL PUMP IN PRESS	4-16 UTIL PUMP OUT PRESS	4-17 FLT CONT PUMP IN PRESS	4-18 FLT CONT PUMP OUT PRESS	4-19 FLT CONT IN PRESS R-RUD ACT	4-20 STAT PRESS AIR IN UTIL SYM HYD RFS	4-21 FUEL PRESS MAIN A/R LINE	4-22 FWD EQUIP COMP D.P.
		MIN	PSID	PSID	PSIG	PSID	PSID	PSIG	PSID	PSIG	PSID
56	.X	.XXX	.XXX	.XX	2143	.XX	2919	3059	.XX	21	.XXX
58	2	2472	948-	698	2166	8636	2951	3036	10612	21	R31
60	4	2577	898-	692	2236	8636	2942	3068	10699	13	R51
62	6	2377	976-	688	2199	8559	2987	3049	10411	13	R61
64	8	2301	948-	708	2199	8739	2987	3049	10411	13	R51
66	10	2120	905-	716	2199	8713	2987	3043	10512	13	R46
68	22	2282	770-	727	2255	8649	3001	3056	10468	11	R31
70	22	2282	656-	753	2259	9023	3005	3036	10324	9	R11
72	24	2120	613-	763	2287	8894	2969	3033	10324	2	R31
74	26	1911	627-	740	2246	8932	3028	3027	10396	0-	R66
76	28	2035	691-	754	2325	8958	3001	3040	10512	12	R66
78	30	2035	606-	762	2325	8765	2996	3008	10411	0-	R51
80	42	1920	556-	770	2297	8726	3028	3062	10425	0-	R31
82	44	1816	499-	769	2236	8803	3037	3008	10368	1	R21
84	46	2092	470-	762	2306	8774	3073	3011	10324	0-	R31
86	48	1854	463-	778	2325	9035	3082	3062	10468	0-	R31
88	50	1844	420-	789	2329	9074	3073	3036	10627	2	R66
90	62	1654	413-	812	2315	9061	3118	2996	10569	9	R31
92	64	1806	413-	791	2325	9151	3091	3024	10612	0-	R31
94	66	1778	299-	796	2306	9190	3096	3011	10440	0-	R31
96	68	1692	320-	789	2329	9023	3078	3005	10512	6	R01
98	70	1806	270-	796	2325	8803	3105	3024	10468	9	R31
100	72	1844	306-	780	2343	9023	3123	3008	10526	6	R11
102	74	2092	270-	788	2343	8932	3091	3005	10425	9	R31
104	76	1854	285-	769	2325	9035	3082	3001	10281	2	R31
106	78	1978	278-	772	2329	9151	3118	3003	10238	6	R46
108	80	2016	320-	762	2283	9023	3087	2976	10094	5	R46
110	92	1664	377-	749	2292	9151	3051	2947	10054	7	R11
112	94	1902	299-	740	2362	8907	3118	3001	10080	2	R66
114	96	1902	313-	727	2343	8894	3100	2985	9892	9	R31
116	98	1911	377-	723	2283	8894	3087	2962	9835	7	R11
118	100	2092	356-	712	2325	9164	3127	3001	9892	9	R21
120	102	2006	328-	702	2287	8765	3046	2966	9705	1	R31
122	104	1654	270-	727	2362	9035	3078	2944	9420	1	R06
124	106	475	78	762	2501	10067	3349	2953	9748	9	0-
126	108	570	0-	707	2501	10067	3349	2953	9748	9	0-
128	110	589	7	708	2523	10054	3333	2976	9360	2	34
130	112	665	121-	707	2523	9835	3362	2998	9460	0-	0-
132	114	570	135-	706	2432	9860	3362	2998	9360	2	34
134	116									6	19

146	214	559	114-	692	2478	9451	3249	2476	9576	14	14-
148	214	550	142-	707	2478	9757	3268	3030	9403	2	0-
150	224	665	255-	694	2529	9757	3249	3030	9403	2	0-
152	234	637	278-	692	2473	9860	3249	3005	9460	9	5
154	244	684	278-	704	2427	9464	3249	2476	9460	9	0-
156	254	604	285-	692	2473	9706	3268	3011	9460	9	14
158	264	675	278-	687	2473	9783	3263	3008	9432	9	0-
160	274	256	78	736	2427	9680	3227	2498	9604	24	124-
162	284	171-	35-	812	2330	10067	3195	2968	10180	25	144-
164	294	256-	49-	763	2464	10195	3263	3054	9460	22	184-
166	304	123-	7	764	2464	10105	3263	2942	9403	18	164-
168	314	123-	42-	758	2390	10247	3245	3005	9417	22	184-
170	324	9	35-	753	2432	10312	3258	3036	9547	6	114-
172	334	19-	49-	753	2390	10092	3227	3040	9518	6	114-
174	344	28-	64-	746	2390	10234	3222	3074	9518	12	134-
176	354	0-	64-	749	2376	10221	3227	3036	9604	6	114-
178	364	66-	128-	732	2408	10067	3177	2995	9417	16	154-
180	374	0-	71-	745	2408	10092	3195	3024	9518	8	134-
182	384	123-	142-	732	2371	9976	3218	3008	9460	16	164-
184	394	85-	121-	727	2422	9835	3200	3001	9403	20	164-
186	404	28-	49-	737	2432	10067	3191	3020	9403	16	164-
188	414	85-	71-	745	2408	10118	3213	3017	9561	12	114-

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CN	ELAP TIME	2-1 COMP AIR IN TEMP 11.00 POS	2-2 COMP AIR IN TEMP 7.00 POS	2-3 FUEL TEMP CENT FWD FUS TANK	2-4 FUEL TEMP OUT FWD CELL BOOST PUMP	2-6 FUEL TEMP OIL COOL OUT	2-7 FUEL TEMP IN OIL COOL	2-8 OIL TEMP IN ENG	2-9 OIL TEMP OUT ENG	2-10 AMB TEMP ADJ CARIN SENS	2-11 C/P AIR OUT DNSTR EQUIP RAM JUNC	2-12 DEFOG AIR TEMP UPSTR NOZ
56		180	177	98	96	142	115	227	352	107	173	117
58	2	179	181	100	97	142	118	231	354	101	163	115
60	4	184	179	100	95	144	117	230	359	102	171	119
62	6	184	181	100	93	146	115	233	362	104	173	121
64	8	181	177	97	98	146	120	238	366	111	169	115
66	10	179	173	100	95	149	121	238	369	106	176	122
68	22	176	179	95	98	149	118	238	370	107	174	118
70	24	180	182	98	98	149	120	238	373	105	169	121
72	26	181	177	101	97	146	120	244	375	110	171	118
74	28	183	183	99	99	148	118	242	377	112	173	126
76	30	179	175	98	97	145	120	245	376	111	173	117
78	42	176	176	100	99	147	120	246	377	110	178	120
80	44	183	184	97	100	147	122	247	382	108	173	126
82	46	181	179	101	98	151	120	245	380	111	176	126
84	48	175	179	101	98	150	125	251	380	115	170	120
86	50	175	176	100	100	148	118	248	386	112	167	122
88	62	173	175	102	98	153	125	251	381	111	169	123
90	64	178	179	101	102	153	125	249	380	111	167	123
92	65	176	179	101	98	154	123	252	383	111	161	124
94	68	177	176	100	100	148	120	249	382	111	167	122
96	70	180	177	99	100	148	123	249	382	115	166	127
98	72	175	173	98	101	151	120	246	385	120	166	120
100	74	174	178	101	102	155	124	251	381	111	169	129
102	75	181	175	100	101	151	123	249	382	112	163	120
104	78	186	175	102	101	151	120	246	381	111	173	123
106	80	175	177	103	100	148	126	249	382	112	167	124
108	92	177	179	100	101	151	123	253	391	118	173	132
110	94	181	181	102	102	155	125	251	386	114	168	127
112	95	183	179	100	101	155	124	252	382	118	173	132
114	98	179	181	102	102	154	125	251	386	120	181	133
116	100	178	182	101	102	157	128	251	391	117	173	130
118	102	179	177	105	103	151	122	249	387	111	171	128
120	104	182	175	101	102	155	124	252	384	120	181	134
122	114	178	177	102	104	157	128	254	377	110	172	128
124	115	94	100	103	103	160	127	259	377	120	100	128
126	118	80	83	102	104	163	123	253	364	110	85	128
128	120	71	73	100	101	180	124	255	348	111	69	129
130	123	69	71	100	105	183	128	251	332	112	67	132
132	134	68	73	100	102	173	127	244	332	108	69	127
134	144	74	73	100	105	177	126	242	332	110	72	133
136	154	78	71	100	105	177	125	240	325	109	67	130
138	164	67	69	105	107	168	124	238	318	102	67	127
140	174	69	67	101	107	167	124	236	318	105	67	126
142	184	70	67	100	102	170	126	231	309	101	63	121
144	194	64	73	100	102	167	126	227	304	97	66	120

146	204	69	65	98	105	164	120	223	304	101	61	117
148	214	67	67	101	101	164	126	220	302	96	65	114
150	224	65	69	104	104	161	124	225	301	93	63	111
152	234	69	64	101	105	160	122	225	299	88	67	113
154	244	76	69	100	102	162	118	220	305	90	63	107
156	254	67	70	100	102	166	117	222	302	93	63	105
158	264	73	61	101	103	157	120	244	332	88	73	113
160	274	53	53	98	104	173	124	225	295	84	52	101
162	284	47	43	101	101	168	124	226	290	96	37	107
164	294	41	34	99	103	173	126	219	288	85	42	105
166	304	39	41	102	105	171	124	214	283	78	46	169
168	314	39	37	98	101	167	124	219	285	86	37	94
170	324	41	39	102	105	166	120	211	283	78	46	99
172	334	42	39	100	102	164	120	213	282	78	39	100
174	344	39	39	101	101	167	124	214	283	80	46	97
176	354	42	44	102	102	163	121	215	275	80	42	94
178	364	43	39	98	101	167	124	215	275	78	46	100
180	374	46	42	100	100	161	118	207	277	71	46	86
182	384	46	42	98	102	161	124	214	278	82	42	94
184	394	49	46	100	102	167	124	214	280	75	55	87
186	404	51	48	101	100	161	118	207	274	73	37	88
188	414	46	39	98	100	161	118	207	274	63	39	84
190	424	49	53	95	98	161	122	216	280	78	46	84
192	434	52	49	95	100	159	115	212	273	69	48	83
194	444	54	49	95	100	159	115	212	273	70	65	86
196	454	85	80	91	102	169	122	206	257	71	88	81
198	464	110	105	94	101	159	127	207	251	80	107	88
200	474	110	109	94	101	150	127	200	267	80	103	86
202	484	109	107	95	102	140	118	204	300	75	113	82
204	494	113	110	91	101	150	118	215	318	78	107	82
206	504	110	105	91	98	146	118	222	325	80	98	88
208	514	107	105	89	102	167	122	224	315	86	100	82
210	524	112	107	93	98	183	116	215	324	80	110	81
212	534	101	101	93	98	173	126	231	311	86	101	88
214	544	110	113	94	101	155	122	225	320	82	105	82
216	554	130	129	98	100	156	121	222	309	86	131	86
218	564	109	105	94	100	167	131	225	290	90	105	90
220	574	113	105	94	103	181	131	225	291	84	104	93
222	584	107	107	99	102	175	130	225	273	92	102	96
224	594	111	115	95	102	178	133	216	272	95	101	93
226	604	150	126	96	101	175	160	209	211	96	119	91
228	614	156	124	95	101	173	163	206	207	103	121	103
230	624	155	130	96	101	174	169	205	205	97	125	113
232	634	179	127	100	101	174	200	196	189	103	124	113
234	644	175	128	103	101	175	200	196	188	101	127	105
236	654	186	128	100	100	175	199	193	184	105	132	111
238	664	179	125	100	100	173	194	190	179	103	133	115
240	674	172	127	101	99	170	190	186	182	107	133	113
242	684	164	127	100	99	169	186	183	175	103	127	116
244	694	163	122	99	99	164	180	179	175	113	132	115
246	704	154	120	100	99	163	175	173	168	107	128	111
248	714	151	121	100	99	162	171	173	166	108	126	114
250	724	148	128	100	99	159	167	172	173	109	134	116
252	734	142	121	100	100	157	161	167	158	105	130	109
254	744	130	115	100	100	153	155	162	156	120	128	115
256	754	129	115	104	103	148	151	161	155	109	129	115
258	764	119	116	103	103	140	141	152	150	113	129	113
260	774	119	114	104	103	145	147	148	147	103	130	109
262	784	119	114	104	103	145	147	148	147	103	130	109
264	794	119	114	104	103	145	147	148	147	103	130	109
266	804	119	114	104	103	145	147	148	147	103	130	109
268	814	119	114	104	103	145	147	148	147	103	130	109
270	824	119	114	104	103	145	147	148	147	103	130	109
272	834	119	114	104	103	145	147	148	147	103	130	109
274	844	119	114	104	103	145	147	148	147	103	130	109
276	854	119	114	104	103	145	147	148	147	103	130	109
278	864	119	114	104	103	145	147	148	147	103	130	109

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CN	ELAP TIME	2-13 BLEED AIR TEMP DNSTR S-OFF VAL	2-14 BLEED AIR RY PASS TEMP	2-15 AIR TEMP DNSTR MOIST SEP ANTI- ICE VAL	2-16 AIR TEMP DNSTR HOT COLD JUNC	2-17 FWD C/P AIR IN TEMP	2-18 SURF TEMP WINDSH BASE CENT	2-19 SURF TEMP WINDSH BASE LEFT SIDE	2-20 SURF TEMP LEFT CENT WINDSH	2-21 SURF TEMP LEFT CENT WINDSH LEFT SIDE	2-22 SURF TEMP CENT WINDSH TOP	2-23 SURF TEMP LEFT SIDE WINDSH AFT
56	• X	555	497	153	48	51	136	134	128	122	131	117
58	2	558	497	159	48	46	141	131	140	124	136	116
60	4	561	495	154	52	48	138	136	136	125	140	119
62	6	560	500	157	52	50	144	138	134	127	142	133
64	8	565	501	156	48	48	153	138	140	129	145	127
66	10	560	502	169	54	52	152	141	138	131	138	127
68	22	561	501	166	46	48	154	143	146	129	145	133
70	24	564	506	173	47	53	154	143	149	133	146	127
72	26	572	503	164	59	50	157	140	148	133	146	127
74	28	567	506	167	48	52	154	140	152	135	147	130
76	30	563	503	167	48	50	162	142	154	138	151	127
78	42	563	503	171	47	50	161	143	151	138	146	131
80	44	563	502	169	59	52	166	146	153	140	148	131
82	46	561	503	170	59	50	163	147	156	138	151	138
84	48	563	508	167	52	53	163	151	155	138	150	136
86	50	566	506	169	50	56	166	151	159	140	157	138
88	62	560	502	166	53	52	169	153	152	142	155	136
90	64	557	506	168	54	53	167	151	160	142	157	135
92	66	557	504	167	54	56	163	151	155	145	152	140
94	68	561	505	164	52	55	166	149	166	142	153	136
96	70	561	506	168	49	55	166	152	152	142	157	140
98	72	560	503	164	48	50	170	154	154	145	154	142
100	74	562	506	168	60	53	171	157	157	144	153	146
102	76	558	508	173	55	52	166	148	159	142	163	138
104	78	564	502	166	59	50	171	154	154	140	162	140
106	80	555	499	161	49	55	166	151	155	142	155	139
108	92	561	503	164	53	55	171	155	161	145	166	138
110	94	566	508	171	60	54	169	150	154	144	159	138
112	96	558	505	169	53	52	168	153	155	142	159	136
114	98	565	503	167	59	54	163	155	155	144	161	140
116	100	561	503	171	60	54	168	155	157	143	155	140
118	102	563	509	173	59	53	171	157	157	145	155	140
120	104	568	512	171	52	53	167	154	156	144	166	145
122	114	555	499	157	39	47	166	158	155	144	160	144
124	116	529	491	173	35	39	168	156	159	144	163	144
126	118	510	460	140	16	28	164	157	159	150	157	136
128	120	439	424	113	12	25	154	142	143	140	146	124
130	123	408	392	102	8	25	153	143	140	134	140	126
132	134	427	388	100	2-	21	144	140	136	133	132	123
134	144	418	388	101	5	20	138	140	134	134	134	118
136	154	418	376	95	5	18	134	134	145	126	123	111
138	164	414	368	86	5	16	127	123	125	115	118	108
140	174	414	373	76	7	21	125	117	109	114	113	107
142	184	381	343	74	5	18	118	112	111	107	107	99

144	194	382	334	71	2-	16	116	108	102	102	101	95
146	204	381	336	70	2-	6	107	109	104	100	94	87
148	214	380	329	72	0-	5	102	103	107	100	95	93
150	224	389	335	73	1-	7	107	101	103	99	93	92
152	234	389	336	69	3-	2	104	103	100	91	88	93
154	244	393	341	73	7-	8	103	95	98	97	100	84
156	254	398	335	67	3-	4	103	97	99	93	90	84
158	264	388	335	73	6-	1-	101	103	100	91	90	84
160	274	329	328	67	9	14	97	103	103	95	88	86
162	284	327	294	66	16	13	103	100	90	97	83	86
164	294	331	296	61	9	13	98	98	93	87	84	75
166	304	347	290	58	12-	2	90	84	88	84	85	73
168	314	338	287	48	7-	5	90	84	88	78	83	69
170	324	346	296	54	0-	2	88	69	78	75	78	70
172	334	335	290	49	5-	4	86	71	85	68	75	67
174	344	346	293	59	5	8	87	67	86	71	73	70
176	354	338	285	51	3-	1-	76	60	69	61	64	61
178	364	341	296	59	4	5	73	63	74	61	67	57
180	374	344	295	54	7-	2-	74	59	73	60	62	57
182	384	344	297	54	5-	2	75	59	71	61	64	58
184	394	341	285	50	3	1-	64	58	67	50	66	50
186	404	330	286	58	8-	2	71	63	71	63	71	61
188	414	336	281	56	1	6	73	63	78	64	73	59
190	424	306	270	50	4	6	73	67	80	64	71	59
192	434	341	290	52	2	4	71	67	69	68	67	60
194	444	358	260	57	41	32	75	73	80	68	69	65
196	454	350	232	67	34	37	70	73	75	71	69	65
198	474	269	231	76	61	53	80	73	76	71	73	67
200	484	371	270	84	47	43	86	83	83	75	86	71
202	494	493	393	80	39	37	88	83	88	78	88	79
204	504	501	432	86	39	39	91	90	91	82	93	86
206	514	498	448	90	38	37	94	94	93	86	95	88
208	524	376	486	93	54	48	95	93	97	90	91	88
210	534	529	450	100	39	34	101	98	100	88	97	88
212	544	550	393	102	60	58	105	100	100	98	103	100
214	554	410	400	95	58	43	102	94	101	91	101	91
216	564	439	388	107	52	43	106	100	107	98	107	100
218	574	352	343	105	61	64	158	*	101	101	101	104
220	584	277	322	109	88	66	107	107	107	101	110	105
222	594	284	284	105	71	71	109	107	110	105	110	102
224	604	253	275	105	86	71	108	105	109	103	107	107
226	614	209	182	113	90	81	110	108	113	105	115	112
228	624	213	182	114	94	82	114	107	113	104	113	107
230	634	213	175	111	93	82	120	109	118	105	113	107
232	684	190	140	114	99	96	112	107	112	107	107	107
234	734	183	137	121	105	95	115	113	115	107	113	109
236	784	179	134	110	100	96	122	113	117	107	114	110
240	834	166	128	118	113	97	115	116	113	106	110	112
242	894	159	126	111	113	98	112	113	109	105	114	110
244	964	149	128	113	105	97	115	108	113	105	111	112
248	1014	141	121	112	107	95	115	109	113	103	116	105
250	1064	140	113	121	107	98	107	109	113	103	105	107
252	1114	136	117	113	105	99	108	107	108	102	111	106
254	1154	140	118	109	105	100	115	113	115	103	103	103
258	1264	122	118	115	107	103	115	122	112	103	108	108
262	1364	114	121	112	108	101	115	106	108	103	113	115
266	1464	128	115	109	109	101	115	112	114	107	122	108
270	1564	120	118	115	108	99	115	109	104	104	107	175
274	1654	120	115	111	100	101	113	111	122	103	107	100
278	1754	114	115	107	115	101	114	111	107	103	114	108

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CN	FLAP TIME	2-24 SURF TEMP	2-25 SURF TEMP	2-26 SURF TEMP	2-27 SURF TEMP	2-28 SURF TEMP	2-29 SURF TEMP	3-1 PILOT FOOT TEMP	3-2 PILOT WAIST TEMP	3-3 PILOT WAIST TEMP	3-4 PILOT HEAD TEMP	3-5 STUD FOOT TEMP
56	• X	128	124	120	86	82	85	101	115	86	109	105
58	2	127	133	126	89	81	82	102	117	89	111	110
60	4	128	130	128	75	82	80	102	114	89	113	108
62	6	134	128	132	78	83	86	105	118	98	109	105
64	8	134	134	130	80	86	75	102	118	92	113	113
66	10	139	134	140	85	83	81	105	115	90	107	110
68	22	140	130	130	75	75	71	105	120	88	109	107
70	24	134	131	136	80	74	76	113	120	97	107	110
72	26	147	132	135	78	80	73	107	115	88	112	118
74	28	142	141	140	75	75	80	105	126	91	114	114
76	30	142	132	136	90	73	73	105	126	99	118	118
78	42	144	138	137	75	84	75	111	120	93	109	115
80	44	143	136	146	86	71	76	105	118	95	107	113
82	46	140	135	144	71	75	80	113	117	91	118	117
84	48	143	141	140	73	90	80	111	122	88	113	121
86	50	147	149	145	73	78	71	105	118	95	120	117
88	62	146	136	142	75	76	74	107	120	88	110	117
90	64	144	140	150	86	76	73	117	125	100	113	120
92	66	146	140	142	75	81	73	116	123	95	113	123
94	68	146	137	144	75	90	69	110	119	100	112	120
96	70	148	140	147	77	82	73	110	127	101	110	122
98	72	147	138	142	76	76	71	109	123	93	113	128
100	74	142	141	150	80	80	80	115	120	91	115	126
102	76	142	136	149	76	80	74	116	120	89	109	126
104	78	144	134	143	80	79	78	107	120	94	118	128
106	80	140	138	145	76	55	95	107	127	95	113	120
108	92	142	138	140	80	82	76	109	126	88	112	124
110	94	142	140	146	86	83	81	109	123	91	111	122
112	96	142	138	145	86	86	75	110	126	90	111	117
114	98	142	140	142	85	88	78	113	126	96	118	124
116	100	142	141	150	86	90	83	113	128	95	118	123
118	102	148	148	147	95	83	78	115	123	89	116	124
120	104	150	150	147	82	82	80	112	120	88	122	118
122	114	141	143	144	89	81	80	107	120	90	118	117
124	116	143	145	147	86	82	90	110	124	93	110	121
126	118	131	128	138	99	94	100	105	118	89	111	121
128	120	115	120	123	113	105	101	107	114	84	122	121
130	123	111	111	120	113	112	112	101	107	84	120	109
132	134	107	107	111	115	116	115	101	107	78	119	113
134	144	101	109	114	121	115	120	101	108	84	120	115
136	154	101	107	108	126	126	120	101	108	80	120	110
138	164	100	95	101	133	126	126	100	101	75	123	110
140	174	90	90	94	128	128	127	95	95	76	126	107
142	184	86	90	90	133	128	124	93	95	71	128	109
144	194	88	93	88	132	132	128	89	93	67	122	101
146	204	82	84	100	131	128	130	90	101	73	128	100

148	214	83	89	87	129	128	122	93	92	67	129	102
150	224	78	85	100	134	127	125	80	91	63	129	102
152	234	76	83	88	133	124	122	88	100	63	126	99
154	244	82	80	83	122	122	120	82	96	73	126	100
156	254	82	87	84	120	120	111	84	90	64	126	100
158	264	82	80	83	120	115	114	87	101	67	126	93
160	274	75	80	86	120	115	111	85	93	69	132	91
162	284	72	80	87	120	111	115	90	86	76	129	90
164	294	81	80	78	120	115	123	84	100	76	129	90
166	304	73	76	71	121	122	127	83	93	69	124	87
168	314	69	67	69	120	130	120	79	88	67	121	88
170	324	69	67	73	120	126	126	82	87	62	126	92
172	334	64	66	73	120	126	120	82	88	64	115	93
174	344	64	61	71	117	122	126	80	87	66	124	84
176	354	60	54	66	115	126	122	76	84	59	124	87
178	364	61	56	66	115	126	115	75	87	53	111	80
180	374	60	49	61	107	118	116	81	80	57	115	80
182	384	61	53	60	112	111	115	80	80	59	108	86
184	394	58	59	63	109	111	113	79	86	61	120	78
186	404	60	59	59	105	107	107	79	84	50	107	85
188	414	66	66	59	107	105	103	75	72	53	107	75
190	424	59	53	59	97	105	103	80	80	56	113	73
192	434	67	61	69	105	100	95	74	84	54	117	80
194	444	63	68	73	100	93	96	71	82	61	121	76
196	454	64	67	68	94	88	92	82	81	70	111	73
198	464	80	74	76	75	83	88	84	88	69	115	71
200	474	80	83	86	73	74	75	88	93	77	105	76
202	484	88	93	90	78	67	73	86	93	71	107	80
204	494	93	93	91	73	59	66	88	88	69	107	75
206	504	91	100	90	67	67	61	80	93	64	107	76
208	514	97	101	96	65	66	61	82	93	78	101	78
210	524	97	101	101	69	74	63	83	90	76	95	86
212	534	103	93	103	60	59	56	88	89	83	100	84
214	544	101	94	103	67	67	60	93	86	75	103	85
216	554	97	103	98	66	61	59	87	101	73	107	85
218	564	101	98	107	54	61	59	96	100	84	102	85
220	574	105	113	105	52	56	52	97	87	87	103	88
222	584	111	113	110	61	62	59	95	102	90	109	93
224	594	107	112	107	74	71	74	100	105	100	107	92
226	604	107	111	113	104	107	100	91	105	97	105	100
228	614	113	113	113	105	105	108	112	107	107	111	98
230	624	112	113	110	109	108	102	102	109	101	107	101
232	634	111	108	112	106	107	106	105	106	107	103	105
234	644	109	111	115	107	108	106	103	112	103	107	105
236	654	115	120	116	109	109	112	105	108	108	112	105
238	664	111	105	112	105	107	107	107	111	103	112	103
240	674	109	111	107	111	115	108	112	103	105	107	107
242	684	109	113	109	107	107	108	107	108	107	107	103
244	694	109	103	109	107	107	113	107	113	107	107	107
246	704	107	110	109	107	107	113	107	113	107	107	107
248	714	113	107	107	108	107	113	106	107	103	107	105
250	724	108	113	104	113	113	107	106	107	103	107	105
252	734	109	112	111	107	109	108	108	108	107	113	108
254	744	107	113	111	106	106	104	107	121	109	108	110
256	754	107	108	105	108	107	107	109	105	108	113	107
258	764	113	108	113	106	108	105	111	109	115	109	111
260	774	107	109	107	104	109	103	112	108	107	106	115
262	784	109	105	106	103	107	107	107	105	113	105	106
264	794	108	103	108	109	107	107	107	110	103	109	113
266	804	108	103	108	109	107	107	107	110	103	105	106
268	814	108	103	108	109	107	107	107	110	103	105	106
270	824	108	103	108	109	107	107	107	110	103	105	106
272	834	108	103	108	109	107	107	107	110	103	105	106
274	844	108	103	108	109	107	107	107	110	103	105	106
276	854	108	103	108	109	107	107	107	110	103	105	106
278	864	108	103	108	109	107	107	107	110	103	105	106

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CN	ELAP TIME	3-6 STUD TEMP UNSH	3-7 STUD WALST TEMP SH	3-8 STUD HEAD TEMP	3-10 AMR TEMP AFT ELECT COMP RH	3-11 AMR TEMP AFT ELECT COMP LH	3-12 AMR TEMP AFT ELECT COMP STA	3-13 AMR TEMP FWD ELECT COMP RH	3-14 AMR TEMP FWD ELECT COMP RH	3-15 AMR TEMP FWD ELECT COMP LH	3-16 AMR TEMP FWD ELECT COMP RH	3-17 UTIL PUMP IN OIL TEMP
56		92	93	97	150	147	143	161	142	134	147	145
58	2	100	84	91	150	151	144	157	153	131	148	146
60	4	90	93	100	152	154	142	166	141	145	155	144
62	6	98	90	98	159	159	146	153	147	134	155	151
64	8	95	88	105	151	162	144	171	143	136	157	151
66	10	100	87	101	155	159	149	155	141	138	159	155
68	22	97	88	103	151	157	151	168	148	140	159	157
70	24	100	95	107	155	159	147	167	151	151	171	155
72	26	100	87	103	156	161	151	179	147	140	159	157
74	28	100	88	101	158	157	156	168	147	140	166	157
76	30	102	95	102	162	156	157	163	155	140	159	152
78	42	101	97	105	161	156	151	181	166	140	159	163
80	44	101	97	103	163	163	161	171	154	142	166	164
82	46	102	100	101	166	161	157	170	154	143	166	166
84	48	102	93	104	164	160	154	178	169	144	157	166
86	50	97	88	105	160	160	166	173	171	143	167	166
88	62	107	96	105	160	161	163	174	154	138	167	169
90	64	100	91	105	167	166	163	169	157	135	163	169
92	66	102	93	101	159	164	155	163	148	146	162	168
94	68	104	93	105	155	165	159	153	151	148	161	168
96	70	108	88	101	157	163	157	157	148	144	159	168
98	72	107	93	103	159	167	153	166	151	145	164	167
100	74	101	102	104	161	162	158	173	169	140	167	167
102	76	105	88	102	160	167	157	163	148	139	162	171
104	78	105	90	101	165	162	157	170	144	139	161	171
106	80	104	91	102	161	162	161	170	157	142	173	169
108	92	105	91	107	167	169	152	169	155	147	167	170
110	94	102	88	107	159	161	160	170	151	142	159	168
112	96	103	88	102	166	163	166	175	157	138	166	173
114	98	103	90	105	166	163	164	181	148	145	162	171
116	100	101	101	107	166	169	164	171	155	142	166	174
118	102	98	95	104	167	164	163	171	179	148	169	171
120	104	107	91	104	168	168	166	167	151	146	167	168
122	114	103	93	101	157	153	153	143	142	129	157	171
124	116	102	87	100	148	148	154	140	151	115	140	166
126	118	99	86	100	126	134	138	118	131	113	128	153
128	120	97	84	97	114	120	124	102	111	102	126	142
130	123	98	83	93	107	115	126	97	123	100	110	138
132	134	100	79	93	105	115	133	88	111	96	109	136
134	144	100	85	100	102	107	126	108	124	105	109	136
136	154	97	82	95	107	112	120	90	107	100	109	134
138	164	95	82	88	100	104	111	101	122	94	109	130
140	174	88	73	90	95	107	115	100	102	84	99	118
142	184	93	73	86	90	97	111	103	113	88	93	113
144	194	90	77	88	84	95	105	83	105	87	90	117

146	204	87	71	83	87	90	103	92	100	86	103	105
148	214	86	70	86	80	92	99	88	107	92	93	107
150	224	89	65	75	80	92	100	86	91	88	84	105
152	234	86	66	80	78	90	96	90	90	84	90	105
154	244	79	63	80	81	88	87	90	113	86	86	100
156	254	82	63	80	79	88	87	86	90	76	90	103
158	264	78	66	82	74	82	91	92	100	76	83	98
160	274	80	60	83	73	82	88	86	101	84	93	98
162	284	83	66	83	71	75	83	80	80	85	84	91
164	294	80	62	80	64	75	87	66	80	64	82	88
166	304	75	62	78	61	73	80	73	93	71	80	90
168	314	80	62	81	60	73	76	75	88	67	81	87
170	324	75	59	78	64	62	76	78	89	73	76	88
172	334	76	61	78	63	61	69	61	80	70	75	82
174	344	78	56	80	59	63	67	60	73	60	73	82
176	354	74	59	81	66	63	67	60	73	60	80	84
178	364	73	52	81	66	63	71	73	95	68	80	84
180	374	73	59	73	61	64	73	76	93	71	75	84
182	384	73	59	73	60	78	74	68	78	61	71	82
184	394	71	53	80	66	65	73	71	82	71	75	82
186	404	67	56	66	61	67	68	47	61	63	73	78
188	414	66	52	69	59	63	69	66	88	71	73	82
190	424	67	63	52	58	59	69	73	71	73	74	82
192	434	63	50	73	54	63	73	67	73	63	68	78
194	444	68	59	74	47	64	69	63	82	67	67	78
196	454	73	59	75	61	64	68	61	69	64	69	80
198	464	71	69	80	68	73	70	88	75	73	73	78
200	474	72	69	80	85	86	80	99	80	86	88	86
202	484	69	69	76	85	86	81	100	100	88	97	89
204	494	74	67	90	90	86	83	101	100	100	97	97
206	504	69	67	69	90	88	85	101	102	84	105	100
208	514	69	61	69	88	93	92	109	101	85	98	102
210	524	68	70	76	88	94	92	109	101	88	101	109
212	534	69	66	69	96	101	91	112	100	83	101	105
214	544	73	69	71	100	101	90	112	105	103	100	111
216	554	70	66	67	91	97	94	109	100	93	107	118
218	564	73	68	73	103	107	102	108	116	104	110	120
220	574	*	81	75	101	101	102	107	107	107	109	118
222	584	76	76	83	103	107	105	115	107	103	113	122
224	594	90	97	107	101	110	102	110	112	100	107	127
226	604	100	95	108	102	109	103	107	112	95	108	124
228	614	98	99	108	104	107	107	153	134	128	125	134
230	624	102	99	107	108	116	109	169	131	132	128	133
232	634	103	100	111	111	113	113	165	136	140	133	134
238	684	103	102	108	108	107	107	161	139	131	129	138
240	734	104	104	107	112	110	113	156	139	136	134	138
242	784	113	108	113	107	116	113	174	142	146	128	140
244	834	107	105	112	109	115	109	167	148	142	134	141
246	884	112	105	113	110	112	108	151	153	144	135	140
250	934	107	106	108	113	113	112	180	149	148	132	140
252	984	113	108	110	108	110	113	175	144	145	132	140
254	1034	103	102	105	110	115	105	170	144	142	130	139
258	1084	111	108	112	113	119	113	170	144	146	136	137
262	1134	113	109	112	115	113	120	181	166	144	132	136
266	1184	109	105	112	115	116	119	182	146	148	125	133
270	1234	107	106	112	114	115	115	196	167	146	138	127
274	1284	107	110	112	112	113	113	183	155	146	133	122
278	1334	114	105	113	115	116	115	179	154	152	130	120

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CN	FLAP TIME	3-18 PUMP OUT OIL TEMP	3-19 UTIL RES IN OIL TEMP	3-20 UTIL COOL IN OIL TEMP	3-21 FLT CONT PUMP IN OIL TEMP	3-22 FLT CONT PUMP OUT OIL TEMP	3-23 FLT CONT RES IN OIL TEMP	3-24 FLT CONT IN OIL TEMP R-RUD CYL	3-25 FLT CONT OUT OIL TEMP R-RUD CYL	3-26 FLT CONT COOL IN OIL TEMP	3-27 SKIN TEMP LEFT AILER DOOR 28
56	• X	166	166	166	138	178	159	166	169	166	153
58	2	169	162	164	142	182	162	168	171	167	155
60	4	171	167	168	142	181	166	168	173	166	154
62	6	176	169	168	147	186	166	178	174	171	158
64	8	179	168	173	147	186	166	178	178	171	162
66	10	178	169	174	151	190	169	177	180	171	160
68	22	183	170	173	150	191	166	181	181	176	161
70	24	181	172	173	151	191	169	184	187	176	157
72	26	184	171	177	155	194	168	186	187	177	161
74	28	186	173	178	157	195	171	184	186	178	159
76	30	184	176	181	159	199	173	188	189	180	161
78	42	188	179	184	162	200	171	184	186	178	166
80	44	190	176	181	159	199	173	191	189	181	161
82	46	189	176	184	157	197	173	191	194	184	164
84	48	191	178	188	162	202	171	188	191	187	164
86	50	194	171	184	166	205	173	191	195	184	161
88	62	194	176	184	166	204	174	194	194	186	165
90	64	194	179	186	166	204	174	194	194	186	162
92	66	194	173	191	166	204	173	191	194	188	162
94	68	194	171	188	167	206	173	194	197	184	160
96	70	194	175	191	167	204	171	193	199	188	157
98	72	193	178	191	171	207	174	194	200	186	159
100	74	195	177	190	167	206	173	191	199	188	162
102	76	194	180	191	169	209	174	194	200	191	161
104	78	194	180	191	169	208	171	193	200	188	159
106	80	196	183	188	167	212	174	197	197	188	159
108	92	200	175	190	168	206	175	195	202	193	160
110	94	199	184	194	171	207	173	194	202	190	161
112	96	200	183	190	168	210	176	194	200	188	159
114	98	194	179	192	171	209	176	194	201	191	165
116	100	197	180	193	167	212	178	197	202	193	160
118	102	197	181	192	171	211	181	197	197	194	161
120	104	199	188	191	170	213	181	202	202	194	161
122	114	197	167	194	171	212	173	194	202	194	155
124	116	199	162	190	168	207	149	194	205	190	142
126	118	184	149	184	155	205	151	184	199	188	109
128	120	179	145	183	151	201	144	180	197	180	91
130	123	171	133	173	147	192	135	173	194	174	87
132	134	169	134	173	140	186	134	171	195	175	84
134	144	166	132	171	140	184	131	167	190	173	82
136	154	163	130	166	135	177	127	155	184	171	80
138	164	154	126	159	130	169	122	155	177	163	76
140	174	147	118	156	130	171	121	148	173	155	67
142	184	138	110	151	124	167	118	145	167	153	67
144	194	142	109	145	115	155	111	138	164	151	69

146	204	131	109	140	117	156	112	140	161	142	61
148	214	130	108	138	109	151	107	135	159	141	66
150	224	131	107	138	107	146	102	130	153	140	67
152	234	129	107	128	109	147	105	130	148	133	61
154	244	124	104	134	108	142	100	122	148	136	66
156	254	125	101	126	105	143	101	127	146	133	61
158	264	124	105	128	107	140	98	124	145	128	61
160	274	124	98	130	109	142	98	123	141	127	61
162	284	122	93	128	101	137	98	115	142	122	54
164	294	114	90	124	102	140	95	115	134	120	48
166	304	111	87	117	95	131	94	118	138	126	49
168	314	111	82	114	94	134	93	118	135	125	46
170	324	114	84	120	94	128	88	109	131	120	43
172	334	107	80	115	89	127	88	109	128	115	39
174	344	109	84	115	91	130	91	113	130	120	42
176	354	111	88	115	91	131	95	111	129	120	42
178	364	112	89	116	95	134	98	111	128	118	43
180	374	105	84	110	84	122	90	105	122	111	37
182	384	107	80	109	88	122	89	102	122	111	37
184	394	103	75	107	84	122	88	103	120	111	39
186	404	107	90	113	90	128	95	109	126	114	41
188	414	109	88	111	87	127	93	108	120	109	41
190	424	103	88	110	85	120	83	105	124	112	41
192	434	107	75	109	88	120	84	109	117	107	49
194	444	100	85	107	87	118	85	104	117	109	46
196	454	102	87	105	87	115	88	102	115	105	54
198	464	107	97	111	89	120	94	105	111	109	73
200	474	109	102	111	91	130	103	113	118	115	90
202	484	116	108	118	99	128	107	117	120	120	95
204	494	128	111	120	103	134	109	120	124	120	100
206	504	133	120	126	105	135	113	123	127	128	100
208	514	131	118	130	109	144	114	120	130	131	98
210	524	136	116	133	109	142	116	128	133	128	102
212	534	135	122	138	112	148	118	128	133	131	102
214	544	140	126	140	113	155	117	136	137	134	104
216	554	144	133	142	116	155	126	134	145	135	111
218	564	140	126	148	122	159	124	142	148	144	111
220	574	143	135	149	126	154	128	149	151	146	107
222	584	150	128	146	126	157	129	146	150	150	107
224	594	151	128	148	124	157	129	146	150	149	107
226	604	139	132	140	130	147	128	149	154	142	107
228	614	138	127	138	132	146	126	149	154	140	107
230	624	137	128	136	131	145	126	150	154	140	107
232	634	127	123	125	135	134	120	161	166	127	107
234	644	126	122	124	135	131	120	163	167	126	107
236	654	124	123	120	134	127	118	166	169	123	107
238	664	121	126	119	133	124	116	167	170	120	107
240	674	124	123	114	131	121	115	167	170	117	106
242	684	118	123	114	131	121	115	167	170	117	106
244	694	117	117	114	128	120	114	169	169	114	105
246	704	115	122	115	126	116	113	165	167	113	106
248	714	114	117	111	125	114	111	162	163	110	103
250	724	113	121	110	122	111	111	161	161	108	103
252	734	112	118	109	120	111	109	159	159	108	103
254	744	113	117	108	118	109	109	151	153	107	103
256	754	108	115	107	114	107	108	147	144	105	102
258	764	110	126	108	113	107	109	143	142	107	104
260	774	109	115	109	113	107	108	136	138	105	103
262	784	107	120	107	109	105	107	130	128	103	101
264	794	107	117	106	107	103	107	126	123	103	101
266	804	107	117	106	107	103	107	126	123	103	101
268	814	107	117	106	107	103	107	126	123	103	101
270	824	107	117	106	107	103	107	126	123	103	101
272	834	107	117	106	107	103	107	126	123	103	101
274	844	107	117	106	107	103	107	126	123	103	101
276	854	107	117	106	107	103	107	126	123	103	101
278	864	107	117	106	107	103	107	126	123	103	101

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CN	ELAP TIME	3-28 AMB TEMP LEFT AILER ACT	3-29 CASE TEMP LEFT AILER ACT	5-5 FUEL A/R FLOW METER	5-6 FRAME TEMP VOLT REG	5-7 SURF TEMP STAR ACT REAR	5-8 AIR TEMP PRESS UTIL SYN HYD RES	5-9 RATT COMP AMB TEMP	5-10 RATT TEMP TEMP	5-11 AFT C/P IN TEMP	5-13 BOTT SEAT REM TEMP
56	• X	130	144	169	133	125	128	153	138	56	99
58	2	131	155	178	138	125	140	155	138	61	99
60	4	133	155	179	141	128	135	144	142	59	101
62	6	136	155	181	138	128	141	148	140	54	98
64	8	137	157	188	166	127	142	156	144	59	100
66	10	140	166	190	142	128	148	157	144	57	101
68	22	135	173	197	143	130	150	150	146	57	102
70	24	140	173	202	148	132	152	157	147	50	101
72	26	142	166	204	151	133	155	154	144	62	103
74	28	142	171	204	154	136	155	166	147	61	102
76	30	145	157	209	154	133	156	166	148	61	103
78	42	144	157	215	154	136	159	155	148	61	104
80	44	146	168	217	151	134	167	159	148	61	104
82	46	144	167	215	151	135	157	155	154	63	100
84	48	144	164	220	155	138	165	166	148	67	100
86	50	147	178	217	151	140	160	157	153	68	104
88	62	149	170	220	157	141	166	152	153	67	103
90	64	150	168	224	151	140	168	157	154	71	100
92	66	151	168	224	151	140	161	157	150	56	103
94	68	151	169	223	157	142	167	156	148	73	102
96	70	155	164	222	154	145	167	155	148	61	103
98	72	151	167	224	157	148	169	161	151	61	105
100	74	155	173	225	153	142	167	156	151	61	100
102	76	154	157	225	155	144	171	166	151	73	102
104	78	154	170	224	157	148	167	159	148	64	105
106	80	151	166	223	157	149	173	173	150	61	102
108	92	153	169	223	157	149	174	166	152	57	104
110	94	153	173	225	159	148	171	163	154	63	101
112	96	154	169	225	152	148	171	169	154	66	101
114	98	155	174	225	160	148	171	167	154	66	102
116	100	158	173	226	155	151	173	167	151	64	102
118	102	158	168	226	155	148	171	171	154	59	102
120	104	154	163	231	157	154	175	173	154	67	102
122	114	159	174	228	157	155	168	150	150	49	104
124	116	155	160	230	151	151	168	138	142	41	104
126	118	154	145	220	142	153	163	128	128	36	102
128	120	151	130	219	136	153	156	120	120	32	101
130	123	151	126	211	124	153	153	111	113	32	100
132	134	145	121	209	129	153	144	110	111	25	100
134	144	148	126	200	118	151	144	113	108	32	103
136	154	145	115	193	124	151	140	106	102	23	100
138	164	143	109	181	109	151	129	101	100	34	102
140	174	131	98	179	107	145	120	107	90	25	98
142	184	128	101	166	101	144	117	100	92	22	98
144	194	129	100	159	100	143	109	101	89	32	

146	204	120	93	154	100	142	101	90	93	21	97
148	214	118	87	151	96	140	91	90	90	31	91
150	224	116	85	146	86	138	91	93	86	20	93
152	234	111	84	142	86	140	87	90	87	20	91
154	244	107	87	141	85	135	90	92	90	23	88
156	254	105	85	138	89	133	83	90	85	32	93
158	264	102	86	136	84	136	81	81	81	25	87
160	274	103	76	128	80	131	86	86	84	39	91
162	284	105	76	129	82	128	83	86	75	34	84
164	294	99	80	134	76	124	80	80	78	32	88
166	304	95	73	134	78	131	82	73	74	16	84
168	314	91	71	131	75	128	80	73	71	25	84
170	324	91	76	133	75	124	79	73	73	23	87
172	334	84	64	128	67	118	76	69	67	23	80
174	344	88	67	133	71	122	78	71	69	21	84
176	354	84	73	129	63	116	73	67	64	18	78
178	364	86	73	124	60	115	69	64	64	16	78
180	374	78	61	126	57	111	69	63	63	9	75
182	384	78	65	131	67	115	76	64	67	16	75
184	394	75	61	128	64	113	71	69	64	7	75
186	404	75	61	131	64	109	68	69	63	9	73
188	414	73	43	129	61	109	76	74	64	18	75
190	434	71	61	131	54	105	76	69	63	24	76
192	444	73	50	126	57	108	66	71	62	17	71
194	454	73	64	128	57	102	69	68	61	46	71
196	464	73	65	128	61	105	66	75	66	49	71
198	474	73	74	133	69	102	71	86	75	66	71
200	484	73	85	138	73	102	76	88	80	50	73
202	494	78	90	140	78	105	78	88	83	46	71
204	504	78	100	134	75	102	86	93	88	48	71
206	514	81	107	128	80	107	89	104	87	46	73
208	524	82	101	131	84	109	84	101	88	60	71
210	534	90	103	127	85	109	94	96	88	48	71
212	544	91	109	142	90	114	100	97	91	61	73
214	554	89	103	142	88	113	96	108	94	60	71
216	564	93	115	151	97	110	90	107	100	69	68
218	574	•	•	155	93	114	105	104	102	68	68
220	584	100	105	164	95	111	107	109	101	75	71
222	594	101	110	178	91	121	107	113	100	80	75
224	604	102	109	180	96	120	109	107	99	78	78
226	614	112	120	254	97	130	113	127	98	88	80
228	624	110	113	254	97	132	113	134	99	91	81
230	634	111	117	251	97	133	113	126	100	93	82
238	734	112	113	215	98	135	113	134	100	90	87
240	784	111	119	206	99	135	116	140	100	97	88
242	834	111	121	194	98	134	115	140	101	105	92
244	934	111	121	186	99	134	113	138	101	96	93
246	964	108	115	179	100	133	113	141	102	104	95
248	1014	109	113	174	100	133	113	135	102	107	96
250	1064	107	113	169	101	132	114	146	101	107	97
252	1114	107	113	164	101	130	112	141	102	116	98
254	1154	107	115	161	107	131	116	143	101	106	99
258	1264	106	116	154	101	130	117	145	102	109	100
262	1364	105	115	150	101	128	115	153	103	105	100
266	1464	107	114	148	104	130	115	147	105	109	101
270	1564	105	112	144	103	129	115	143	105	101	101
274	1654	103	113	138	103	128	111	146	104	103	101
278	1754	104	113	134	103	126	112	151	103	104	104

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CN	FLAP TIME	5-14 MID SFAT	5-15 TOP SEAT	5-16 CAN REM	5-17 AMR CAN	5-18 AMR CAN	5-22 AC ALT	5-23 AC ALT	5-24 AMR ALT	5-25 AC ALT	5-26 AFT C/P
56	• X	96	107	102	102	109	179	173	171	168	59
58	2	100	107	102	110	107	175	179	171	171	59
60	4	100	107	101	107	102	171	179	171	171	57
62	6	98	109	103	112	112	176	181	178	173	66
64	8	98	102	105	113	109	175	181	176	174	65
66	10	100	107	102	107	105	173	180	181	171	61
68	22	101	109	103	113	107	173	183	178	173	62
70	24	104	107	101	109	113	172	178	180	175	61
72	26	100	107	102	115	111	176	179	192	173	56
74	28	101	104	105	113	109	172	179	175	173	64
76	30	100	107	101	115	105	173	183	180	175	68
78	42	103	103	105	115	115	177	184	179	173	60
80	44	107	107	102	115	111	173	186	180	175	63
82	46	100	114	102	111	117	174	185	184	175	63
84	48	103	107	107	115	109	170	182	174	175	68
86	50	101	107	102	115	111	173	183	181	171	64
88	62	107	107	105	116	113	168	185	176	175	56
90	64	100	107	107	118	117	173	180	173	176	61
92	66	110	105	102	120	111	173	181	175	171	61
94	68	105	107	105	118	115	169	176	181	173	67
96	70	100	112	107	115	111	171	175	180	168	61
98	72	107	105	105	120	115	171	176	181	168	61
100	74	101	107	105	117	117	169	173	181	171	61
102	76	109	107	105	121	117	177	177	186	173	60
104	78	105	109	107	126	115	170	175	179	173	57
106	80	104	111	105	120	114	173	183	186	173	60
108	92	108	109	107	115	118	175	179	173	173	61
110	94	101	105	105	118	111	171	186	183	174	61
112	96	107	105	105	118	114	169	182	181	173	60
114	98	107	109	108	124	121	173	177	179	173	56
116	100	107	110	105	120	115	175	181	180	175	61
118	102	105	107	108	118	122	171	179	179	171	64
120	104	102	105	108	122	118	170	176	184	173	61
122	114	104	109	108	115	118	118	149	165	159	53
124	116	105	107	107	114	115	100	135	152	142	48
126	118	102	106	102	115	114	82	113	133	120	39
128	120	101	103	103	108	105	69	103	114	105	34
130	122	105	103	105	107	102	71	97	112	95	39
132	124	99	107	107	107	102	73	90	107	97	33
134	144	98	107	102	98	107	66	90	107	96	32
136	154	100	102	105	103	104	75	89	100	88	34
138	164	100	103	102	98	109	64	83	100	86	37
140	174	97	108	101	97	106	67	79	92	78	21
142	184	94	107	100	95	98	67	79	92	80	25
144	194	94	107	100	92	98	63	76	88	76	22
146	204	90	103	100	93	95	63	74	87	73	25

148	214	84	108	101	86	90	73	74	84	73	22
150	224	88	98	103	89	90	67	75	80	70	7
152	234	89	101	100	83	92	69	73	80	73	16
154	244	83	101	100	81	87	71	75	81	71	16
156	254	86	98	101	82	86	66	71	85	73	12
158	264	80	103	100	76	85	67	75	85	69	16
160	274	83	107	98	80	83	53	74	68	69	20
162	284	80	107	95	84	87	47	71	64	71	21
164	294	80	100	95	76	88	46	67	61	67	*
166	304	75	97	98	80	86	46	62	66	61	18
168	314	76	96	98	80	82	41	57	69	64	25
170	324	78	102	100	75	84	48	63	76	65	25
172	334	76	93	94	71	76	48	54	66	57	14
174	344	78	101	98	76	75	52	63	69	63	19
176	354	71	94	97	64	76	43	61	69	59	19
178	364	75	95	94	70	78	51	60	75	64	19
180	374	74	83	91	64	74	51	60	65	61	17
182	384	71	88	91	65	74	46	59	69	64	21
184	394	78	84	90	63	67	52	61	73	61	14
186	404	71	87	90	64	67	49	59	78	66	6
188	414	69	86	88	59	71	43	60	61	61	14
190	424	64	85	91	73	64	49	61	63	61	21
192	434	73	89	90	66	66	59	60	74	59	12
194	444	67	84	88	64	71	65	69	73	67	39
196	454	70	86	87	67	73	86	80	80	78	41
198	464	67	93	88	76	73	107	93	93	98	56
200	474	71	86	91	73	75	111	122	112	109	46
202	484	69	88	87	74	76	120	117	110	102	46
204	494	67	82	88	75	77	123	120	117	112	43
206	504	64	84	86	73	74	126	120	126	114	39
208	514	73	83	86	75	71	138	157	143	135	60
210	524	68	82	86	78	71	133	123	107	97	46
212	534	71	76	87	82	80	131	151	131	136	*
214	544	73	84	84	80	78	109	129	126	131	48
216	554	64	86	87	82	86	120	127	140	138	59
218	564	73	86	86	82	86	121	151	158	144	73
220	574	75	84	89	83	78	146	167	159	148	73
222	584	82	88	95	101	105	160	162	154	155	78
224	594	84	93	95	105	107	164	173	160	157	82
226	604	93	100	97	108	102	151	183	157	173	92
228	614	95	98	99	113	106	151	181	159	173	86
230	624	95	100	98	109	108	151	180	157	173	90
232	634	95	100	98	109	108	151	177	153	167	90
234	644	100	108	100	113	107	137	177	153	167	90
236	654	101	105	101	111	109	140	179	166	163	100
238	664	107	101	100	105	103	140	171	146	162	105
240	674	102	107	101	105	104	134	173	149	159	105
242	684	106	107	101	113	107	*	168	144	155	105
244	694	107	105	101	102	107	133	166	140	153	112
246	704	107	105	101	104	107	134	165	140	151	108
248	714	107	105	101	107	107	128	166	145	149	103
250	724	108	113	101	106	108	156	165	144	147	114
252	734	108	107	101	113	102	122	155	142	143	109
254	744	105	103	100	105	104	114	149	136	140	107
256	754	108	113	101	102	102	121	158	140	140	107
258	764	113	105	100	107	108	117	151	130	134	115
260	774	113	105	100	107	113	111	141	124	128	105
262	784	107	109	100	109	107	118	145	124	127	106

T-38 High Temperature Evaluation Data, Flight Nr 11 (4 September 1960)

CN	FLAP TIME	1-4 AIR SPEED	1-5 ALT	1-7 EXH GAS TEMP	1-8 TACH SPEED	1-10 MAIN FUEL FLOW	1-11 STAT REF PRESS	1-12 COMP AIR PRESS	1-15 FUEL PRESS	1-16 FUEL MAIN ENG PUMP	1-17 OIL PRESS IN-ENG PUMP
	MIN	KNOTS	FEET	EGT	RPM	LBS/HR	PSID	PSID	PSID	PSID	PSID
84	100	420	10100	682	16371	2050	•XXX	•XXX	•XX	•XXX	•XXX
86	110	380	17650	671	16660	2100	740	2596	2106	346	1100
88	120	350	22500	665	16388	2100	1743	2476	2102	319	1089
90	130	340	25000	643	16201	2200	2995	2228	2102	267	1177
92	140	310	28500	661	16337	2200	3788	2040	2111	272	1177
94	150	310	31000	654	16456	2200	4422	1844	2084	244	1331
96	160	310	33000	680	16524	2200	4931	1854	2033	234	1331
98	170	290	35100	685	16422	2200	4931	1807	2058	222	1430
100	180	290	35100	612	16089	2200	4931	1843	2124	233	1367
102	190	290	35500	707	15487	700	4972	1556	2102	192	1540
114	220	290	35450	513	14460	700	4972	2055	2124	148	1516
116	230	285	36000	533	14841	700	4972	2228	2124	197	1650
118	240	285	35600	513	14460	700	4972	2253	2102	195	1672
120	250	285	36050	514	14460	700	4925	2240	2115	202	1762
122	260	285	35500	535	14460	700	4978	2377	2098	208	1650
124	270	280	35050	550	14505	700	4972	2240	2102	199	1782
126	280	285	34850	535	14460	700	4854	2452	2084	202	1672
128	290	240	35900	504	14404	700	4931	2476	2115	205	1661
130	300	285	36100	527	15288	700	4964	2476	2111	141	1595
132	310	265	35500	527	14472	700	4954	2532	2141	149	1738
134	320	285	35350	517	14409	700	4954	2414	2124	202	1738
136	340	285	35500	544	14477	700	4964	2532	2124	212	1634
138	340	285	35650	508	15011	700	4978	2540	2124	213	1573
142	360	245	36050	607	15725	775	5041	2005	2124	208	1672
144	370	250	36050	417	14460	500	4714	2117	2207	208	1650
146	380	248	36100	550	15810	650	5451	2117	2246	200	1749
148	390	240	36700	545	15755	650	5404	2042	2279	207	1804
150	400	240	36500	561	15708	650	5375	2204	2244	204	1760
152	410	240	35000	524	15584	650	5363	2117	2246	217	1727
154	420	242	35000	524	15708	650	5334	2254	2264	217	1644
156	430	248	35000	512	15606	625	5310	2240	2264	218	1804
158	440	242	35000	494	15451	625	5334	2240	2264	204	1738
160	450	238	35000	507	15285	600	5375	2041	2264	202	1760
162	460	238	35000	504	15385	600	5344	2104	2264	204	1644
164	470	235	35000	473	15408	600	5344	2104	2264	213	1615
166	480	242	35000	504	15485	600	5405	2017	2264	213	1615
168	490	238	35000	499	15300	600	5344	2017	2264	205	1615
170	500	238	35000	515	15468	600	5344	2104	2264	195	1649
172	510	248	35000	481	15215	600	5369	2276	2264	205	1727
174	520	240	35000	474	15402	600	5344	2276	2264	205	1595
176	530	240	35000	484	15317	600	5367	2164	2264	204	1670

178	540	235	35000	474	15164	600	5399	2067	2229	193	1826
180	550	235	35000	639	16779	600	5387	2104	2246	243	1738
182	560	240	35000	671	17238	600	5363	2104	2282	231	1584
188	590	336	21400	520	15708	900	2693	3020	2277	197	1529
190	600	311	21950	424	15504	900	2687	2896	2273	199	1624
192	610	308	21350	424	15640	900	2664	2773	2255	213	1551
194	620	336	22500	444	15470	900	2664	2513	2255	217	1661
196	630	301	22700	500	15640	900	2628	2476	2255	217	1672
198	640	336	21150	464	15674	900	2634	2748	2290	219	1672
200	650	309	22050	450	15470	900	2604	2513	2277	204	1551
202	660	338	22700	470	15555	900	2604	2488	2268	214	1573
204	670	303	22050	469	15691	900	2604	2488	2277	202	1617
206	680	317	22500	480	15555	900	2664	2476	2255	224	1485

J-38 HIGH TEMP EVALUATION
FL CENTRO NALF, CALIFORNIA
4 SEPTEMBER 1960 T-38 High Temperature Evaluation Data, Flight Nr 11 (4 September 1960)
FLIGHT TEST NR 11

CN	FLAP TIME	1-18	1-20	1-21	1-22	1-24	1-24	1-26	1-27	1-28	4-12
		OIL PRESS	DIFF PRESS	STAT PRESS	TOTAL PRESS	STAT PRESS	TOTAL PRESS	TOTAL PRESS	STAT PRESS	STAT PRESS	U.P.
		OUT	C/D	HLFED	HLFED	COND	COND	HLFED	DEF	DEF	FWD
		FNG PUMP	STAT	AIR	AIR	AIR	AIR	AIR	DUCT	DUCT	CHL
			AIR	DNSTR	DNSTR	DNSTR	DNSTR	DNSTR	DNSTR	DNSTR	AND
			SENS	S-OFF VAL	S-OFF VAL	HOT COLU	HOT COLU	PASS	NOZ	NOZ	CAV
						JUNC	JUNC				
	MIN	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG	PSIG
84	•X	•XXX	•XXX	•XXX	•X	•XXX	•XX	•X	•XXX	•XXX	•XXX
86	100	2266	1547	1566	1542	2734	122	672	83	481	3000
88	110	2302	2544	411	738	153	284	546	197	390	3757
90	120	2697	3715	286	593	153	404	505	204	286	3622
92	130	2867	4440	667	560	141	398	454	391	263	3472
94	140	2867	5047	268	489	111	472	418	452	309	3412
96	150	2616	5498	119	464	97	469	352	513	206	3352
98	160	2795	5498	173	439	118	492	352	509	252	3285
100	170	2903	5530	0	406	83	445	346	444	229	3255
102	180	2544	5544	107	323	118	516	265	513	229	3142
104	190	2867	5517	131	361	67	500	343	509	252	3180
106	200	2266	5544	191	319	0	528	267	494	240	3030
108	210	2553	5596	149	319	55	518	260	513	229	3000
110	220	2347	5498	107	278	6	503	260	516	229	2850
112	230	2437	5570	256	319	44	513	272	513	149	2775
114	240	2598	5570	131	290	0	445	237	514	242	2715
116	250	2338	5550	173	352	45	503	296	409	149	2677
118	260	2428	5537	59	311	41	513	272	513	240	2610
120	270	2508	5504	107	276	34	500	251	515	279	2505
122	280	2508	5544	59	278	34	503	235	520	229	2422
124	290	2544	5504	0	261	0	501	235	514	344	2415
126	300	2410	5563	173	336	41	522	277	497	286	2355
128	310	2374	5602	0	332	0	522	258	499	275	2325
130	320	2446	5550	107	319	67	528	258	505	195	2122
132	330	2768	5596	119	311	55	492	251	513	195	1950
134	340	2213	5903	83	236	41	516	169	533	183	2040
136	350	2598	5844	173	315	34	515	235	533	252	1995
138	360	2607	5831	113	298	7	495	251	566	275	1840
140	370	2688	5844	161	278	0	507	239	551	229	1650
142	380	2517	5798	209	249	20	501	239	560	149	1665
144	390	2548	5792	0	294	20	518	235	556	321	1500
146	400	2759	5798	0	269	20	503	235	541	229	1402
148	410	2607	5831	113	298	0	507	228	570	195	1177
150	420	2688	5844	161	278	48	494	244	545	252	1132
152	430	2517	5798	209	249	90	498	249	539	298	1065
154	440	2548	5792	0	294	48	503	253	545	252	997
156	450	2759	5798	0	269	0	510	246	551	195	1050
158	460	2705	5850	209	290	0	507	244	545	252	1050
160	470	2571	5824	71	290	90	498	249	539	298	1065
162	480	2455	5863	95	269	48	503	253	545	252	997
164	490	2499	5877	119	278	0	510	246	551	195	1050
166	500										

172	510	2499	5811	220-	298	62-	503	258	537	229	930
174	520	2759	5805	149-	290	90-	503	235	552	183	832
176	530	2598	5850	59-	261	34-	503	244	537	309	900
178	540	2446	5877	137-	249	7	516	235	564	229	727
180	550	4145	5857	119-	356	27-	500	282	556	195	795
182	560	2956	5824	197-	340	69-	522	282	560	206	780
188	590	2222	3284	191-	455	104-	547	408	275	309	600
190	600	2329	3349	244-	458	7	429	369	275	458	502
192	610	2329	3271	119-	469	76	368	383	275	424	525
194	620	2114	3258	328-	498	13	374	408	266	263	577
196	630	2329	3232	232-	498	20	395	413	285	344	472
198	640	2249	3297	185-	498	20	365	416	273	263	450
200	650	2338	3349	298-	514	27	368	411	285	286	585
202	660	2338	3258	276-	456	0-	368	404	281	263	525
204	670	2338	3265	352-	502	*	*	387	286	458	502
206	680	2166	3271	209-	456	0-	344	404	275	263	540

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CN	ELAP TIME	4-13	4-14	4-15	4-16	4-17	4-18	4-19	4-20	4-21	4-22
		TOTAL	ALT	UTIL	UTIL	FLT	FLT	FLT	STAT	FUEL	FWD
		PRESS	COMP	PUMP	PUMP	CONT	CONT	CONT	PRESS	PRESS	EQUIP
		COOL	STAT	IN	OUT	PUMP	PUMP	IN	AIR	MAIN	COMP
		AIR	PRESS	PRESS	PRESS	IN	OUT	PRESS	IN	A/H	D.P.
		IN				PRESS	PRESS	R-KUD	UTIL	LINE	
		ALT						ACT	SYM		
									RES		
	MIN	PSID	PSID	PSID	PSIG	PSID	PSID	PSIG	PSID	PSIG	PSID
84	•X	•XXX	•XXX	•XX	2418	11897	3258	3068	•XX	1	•XXX
86	100	694	149-	943	2487	11917	3317	3056	11721	234	234
88	110	580	42-	562	2483	10917	3317	3056	11851	6	149
90	120	590	0-	966	2529	10440	3403	3049	11908	6	84
92	130	580	21	971	2529	10569	3435	3040	12096	6	149
94	140	542	42	983	2566	10324	3439	3020	12156	5	0-
96	150	551	71	977	2566	10505	3403	3046	12153	7	10-
98	160	580	78	961	2585	10440	3457	3040	11908	2	0-
100	170	589	71	956	2566	10621	3439	3027	11764	5	84-
102	180	779	142	920	2613	10337	3489	3062	11332	2	84-
104	190	769	270	866	2566	10544	3480	3072	11016	245	10-
106	200	694	142-	745	2533	10312	3399	3044	10612	13	99-
108	210	504	192-	689	2538	10312	3313	3072	10224	0-	74-
110	220	523	213-	689	2478	10312	3444	3062	10123	2	99-
112	230	523	213-	694	2415	10312	3444	3075	10180	9	114-
114	240	408	185-	702	2525	10312	3399	3061	10137	14	89-
116	250	475	263-	720	2478	10384	3453	3062	10324	19	114-
118	260	570	213-	720	2501	10364	3462	3062	10234	19	74-
120	270	532	249-	730	2511	10092	3313	3078	10224	26	49-
122	280	475	156-	713	2520	10312	3361	3068	10324	19	74-
124	290	380	171-	713	2445	10144	3344	3078	10108	24	49-
126	300	475	178-	723	2506	10544	3326	3061	10238	19	64-
128	310	408	171-	713	2566	10312	3331	3068	10349	19	44-
130	320	428	142-	720	2538	10415	3340	3100	10166	19	89-
132	330	342	7	833	2529	10564	3453	3041	10368	14	99-
134	340	694	71	831	2706	10566	3620	3263	10540	27	119-
136	350	313	142-	807	2664	10892	3625	3292	10728	32	189-
138	360	339	142-	812	2631	11085	3543	3257	10664	36	164-
140	370	447	164-	828	2631	11085	3575	3253	10612	32	114-
142	380	570	213-	817	2659	10917	3579	3255	10684	32	134-
144	390	437	235-	814	2641	11085	3616	3260	10641	32	89-
146	400	570	278-	776	2618	10853	3607	3244	10756	36	99-
148	410	428	285-	774	2515	10666	3579	3228	10828	34	99-
150	420	171	199-	758	2664	11111	3525	3274	10694	37	79-
152	430	209	235-	774	2631	10904	3512	3274	10800	48	99-
154	440	285	206-	769	2618	10917	3512	3257	10658	26	164-
156	450	247	263-	741	2618	10935	3444	3274	10670	39	114-
158	460	228	206-	777	2618	11085	3561	3247	10800	39	79-
160	470	237	213-	783	2613	11137	3448	3277	10714	37	99-

172	510	313	235-	784	2655	10879	3512	3244	10656	25	164-
174	520	313	192-	779	2596	11085	3575	3257	10600	40	99-
176	530	199	199-	778	2599	10917	3543	3255	10656	36	114-
178	540	228	192-	777	2599	10853	3579	3247	10600	34	149-
180	550	66	263-	838	2585	11179	3616	3253	10915	35	69-
182	560	323	121-	876	2604	11317	3579	3202	10814	35	84-
188	590	865	705-	753	2478	10312	3308	3295	10857	34	99
190	600	637	634-	715	2501	10221	3341	3269	10656	38	84
192	610	570	520-	723	2511	10763	3313	3272	10440	29	34
194	620	456	520-	734	2501	10605	3426	3250	10256	29	54
196	630	589	427-	727	2604	10479	3403	3245	10123	27	49
198	640	428	413-	736	2478	10827	3371	3276	10224	28	99
200	650	542	392-	736	2506	10724	3371	3245	10224	28	109
202	660	389	392-	751	2501	10776	3444	3231	10310	19	74
204	670	475	406-	743	2506	10698	3430	3247	10410	19	74
206	680	408	377-	746	2478	10582	3399	3317	10180	14	49

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CN	FLAP TIME	2-1 COMP AIR IN TEMP 11.00 POS	2-2 COMP AIR IN TEMP 7.00 POS	2-3 FUEL TEMP CENT FWD FUS TANK	2-4 FUEL TEMP OUT FWD CELL ROCKET DUMP	2-6 FUEL TEMP COOL OUT	2-7 FUEL TEMP IN OIL COOL	2-8 OIL TEMP IN ENG	2-9 OIL TEMP OUT ENG	2-10 AMR TEMP ADJ CARIN CENS	2-11 C/P AIR OUT ONSTR FUELIP RAM JINC	2-12 DEFOG AIR TEMP UPSTR NO7
56	* X	106	106	91	96	105	107	102	118	111	126	126
58	10	113	101	88	94	108	114	111	136	116	124	127
60	20	107	113	94	94	115	117	131	160	109	126	122
62	30	109	105	94	94	118	118	147	174	110	128	122
64	40	103	115	94	95	125	118	153	184	110	123	126
66	50	113	109	95	93	125	122	160	184	111	128	116
68	60	105	111	94	95	120	115	169	226	105	111	115
70	70	111	104	93	91	122	112	181	248	113	126	118
72	80	115	112	94	91	125	109	183	266	108	115	117
74	90	125	125	93	95	128	107	181	285	109	109	118
76	100	133	127	91	91	128	109	192	288	104	113	120
78	110	135	128	95	95	131	111	202	305	112	127	112
80	120	135	134	95	97	133	115	207	314	107	126	113
82	130	122	126	94	93	140	109	220	332	107	115	113
84	140	103	107	94	97	142	112	235	341	101	94	115
86	150	84	88	91	95	147	114	232	341	100	78	113
88	160	66	70	91	99	151	115	233	341	99	61	122
90	170	56	60	93	99	155	114	231	333	95	50	117
92	180	46	46	93	99	157	116	233	325	101	37	120
94	190	32	33	93	99	162	114	233	322	107	22	111
96	200	25	18	93	99	163	116	236	324	99	20	115
98	210	25	18	93	99	166	116	236	317	98	19	110
100	220	18	14	91	100	168	117	239	315	90	15	109
102	230	18	16	94	99	167	118	234	306	80	7	102
104	240	20	25	91	98	162	113	232	312	76	12	95
106	250	32	33	91	100	160	115	234	314	85	22	102
108	260	34	37	94	96	155	114	233	313	84	32	103
110	270	41	34	93	95	157	115	231	315	82	27	101
112	280	14	16	92	98	173	115	238	311	84	7	100
114	290	9	18	93	97	173	113	235	306	81	14	97
116	300	14	10	91	98	169	115	234	304	78	7	100
118	310	12	18	94	94	171	118	235	307	81	21	98
120	320	12	10	91	100	166	117	237	304	74	5	86
122	330	18	18	88	98	166	114	236	304	69	12	93
124	340	11	18	97	96	167	115	230	304	75	11	83
126	350	12	14	95	92	167	113	230	291	71	10	88
128	360	21	18	94	93	164	115	218	286	68	9	80
130	370	25	19	94	96	164	117	218	288	67	7	89
132	380	21	13	91	97	161	116	218	294	70	18	92
134	390	16	18	90	94	166	111	222	284	66	14	86
136	400	16	10	90	94	166	110	222	284	62	18	83
138	410	16	24	90	91	159	113	220	290	60	14	81
140	420	4	7	88	91	154	113	220	293	71	4	80
142	430	0-	3-	91	93	150	111	217	284	67	1-	82
144	440	13	5	91	94	184	120	235	307	58	4	81

146	380	4	4	4	93	101	177	115	222	303	59	7-	73
148	390	4	4	2-	93	100	173	120	231	302	63	R-	82
150	400	2-	5-	5-	94	98	173	121	233	301	65	4	82
152	410	2-	5-	5-	94	97	173	120	232	302	67	1	79
154	420	2-	4	4	93	96	167	114	227	300	60	1-	70
156	430	7	3	3	90	91	168	121	226	300	54	3	74
158	440	7	2-	2-	97	94	171	115	229	304	54	2-	75
160	450	0-	2-	2-	97	91	171	118	226	309	53	0-	67
162	460	3-	5	5	98	98	173	115	228	303	53	7-	67
164	470	3-	2-	2-	96	91	167	120	224	304	50	3-	73
166	480	R-	4	4	98	97	175	115	228	307	54	4-	69
168	490	5	5-	5-	96	90	167	117	223	309	50	3-	73
170	500	5-	4	4	91	93	168	117	225	301	52	2-	69
172	510	4	9-	9-	94	98	167	118	222	306	43	2-	69
174	520	2-	1-	1-	88	95	171	110	227	300	54	7-	68
176	530	3	0-	0-	91	93	173	111	230	301	54	8-	64
178	540	4	4-	4-	95	88	166	118	221	307	52	4	68
180	550	1-	0-	0-	95	92	155	115	223	309	46	3-	76
182	560	3-	7-	7-	88	93	157	115	225	304	48	0-	71
184	570	46	43	43	90	80	161	112	229	308	58	40	62
186	580	74	75	75	88	93	148	111	218	300	52	63	61
188	590	73	66	66	88	92	153	112	218	306	52	56	57
190	600	72	73	73	80	87	154	114	225	309	48	66	57
192	610	67	70	70	80	88	154	113	218	306	54	60	57
194	620	72	66	66	88	91	159	111	220	310	57	73	62
196	630	69	67	67	86	88	162	113	219	303	57	65	62
198	640	68	66	66	88	94	159	109	223	314	56	66	56
200	650	73	65	65	90	95	155	111	227	309	53	63	57
202	660	73	67	67	86	91	161	*	*	304	55	66	65
204	670	67	69	69	86	88	163	113	221	303	56	63	61
206	680	67	63	63	87	94	158	109	223	300	56	61	62
208	682	56	59	59	91	92	146	105	220	306	61	60	64
210	684	166	160	160	90	93	148	113	214	303	68	53	60
212	686	180	176	176	94	91	148	116	213	308	63	88	65
214	688	169	167	167	91	88	153	117	218	364	71	88	69
216	690	144	143	143	88	93	153	115	242	361	71	86	78
218	692	139	142	142	90	94	173	122	244	336	74	138	63
220	694	147	145	145	95	91	167	120	240	329	81	144	76
222	696	147	145	145	91	91	166	122	244	329	80	139	75
224	698	142	140	140	90	88	166	124	236	324	76	142	75
226	700	123	119	119	86	93	171	120	244	325	78	126	85
228	705	120	117	117	87	91	186	124	243	322	82	120	80
230	710	114	118	118	90	91	183	128	243	316	82	108	80
232	720	115	117	117	89	91	160	124	238	311	80	120	80
234	730	114	113	113	93	95	171	127	233	316	82	113	84
236	740	117	120	120	91	93	170	128	231	316	82	120	83
238	750	118	120	120	90	88	161	123	233	*	*	120	78
240	760	120	114	114	92	93	181	127	234	309	84	106	84
242	770	116	117	117	93	93	182	128	233	302	82	100	83
244	780	114	116	116	93	91	184	126	238	301	88	105	84
246	790	114	114	114	96	91	177	128	224	275	95	101	86
248	800	109	111	111	94	94	171	130	215	258	88	105	89
250	820	145	127	127	94	93	177	154	225	226	89	105	93
254	920	151	126	126	105	93	175	173	209	188	103	127	103
256	970	148	127	127	104	97	175	173	204	170	105	140	103
258	1020	147	126	126	105	101	173	171	199	173	107	129	115
260	1050	140	120	120	105	101	169	166	194	167	103	124	110
262	1120	140	120	120	105	101	167	160	190	168	103	126	115
264	1170	136	120	120	105	101	167	159	186	162	102	126	115
266	1210	141	117	117	105	101	162	155	181	159	107	140	120

CN	ELAP TIME	2-1 COMP AIR IN TEMP 11.00 POS	2-2 COMP AIR IN TEMP 7.00 POS	2-3 FUEL TEMP CENT FWD FUS TANK	2-4 FUEL TEMP OUT FWD CELL BOOST PUMP	2-6 FUEL TEMP OIL COOL OUT	2-7 FUEL TEMP IN OIL COOL	2-8 OIL TEMP IN ENG	2-9 OIL TEMP OUT ENG	2-10 AMB TEMP ADJ CABIN SENS	2-11 C/P AIR OUT DNSTR EQUIP RAM JUNC	2-12 DEFOG AIR TEMP UPSTR NOZ
268	1270	130	121	107	102	161	156	179	156	112	133	126
270	1300	153	118	105	103	161	155	176	157	114	145	120
272	1340	142	121	107	105	*	158	175	156	108	138	115
274	1400	140	119	106	104	163	159	172	159	113	135	118
276	1470	146	125	108	105	159	155	172	156	115	141	130
278	1520	146	125	107	104	*	153	167	157	126	153	123
280	1620	140	123	106	104	157	155	165	155	109	142	143
282	1670	148	121	107	107	155	153	166	153	115	148	130
284	1720	149	122	108	104	155	153	163	160	116	142	122
286	1770	141	125	107	105	153	151	159	154	118	140	129
288	1800	141	117	107	107	153	153	160	159	118	140	131
290	1850	136	121	107	105	151	150	159	153	114	149	128
292	1910	135	126	107	105	150	149	157	148	113	140	122
294	1970	140	119	107	103	150	150	156	148	114	135	128

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CN	FLAP TIME	2-13 RIFFEN AIR TEMP DNSTR S-OFF VAL	2-14 RIFFEN AIR TEMP DNSTR PASS TEMP VAL	2-15 AIR TEMP DNSTR MOIST SEP ANTI- ICE VAL	2-16 AIR TEMP DNSTR HOT COLD JUNG	2-17 EWO C/D AIR IN TEMP	2-18 SIDE TEMP WINDSH RACE CENT	2-19 SIDE TEMP WINDSH RACE CENT	2-20 SIDE TEMP WINDSH CENT	2-21 SIDE TEMP LEFT CENT WINDSH LEFT SIDE	2-22 SIDE TEMP LEFT CENT WINDSH TOP	2-23 SIDE TEMP LEFT CENT WINDSH AFT
54		175	122	105	87	84	151	134	144	124	130	125
58	10	220	140	105	75	80	155	138	143	125	135	122
60	20	213	174	105	78	75	150	133	143	133	128	120
62	30	208	189	102	84	78	143	127	138	131	127	118
64	40	240	192	105	77	75	136	126	135	126	128	120
66	50	220	202	102	84	78	136	128	137	128	128	121
68	60	471	302	102	32	49	130	128	133	120	123	126
70	62	505	360	93	40	37	133	125	127	120	126	111
72	64	518	395	103	39	30	134	128	137	118	127	115
74	66	536	414	100	43	37	129	127	128	118	125	109
76	68	542	444	107	28	37	137	125	128	118	120	113
78	70	560	457	107	30	34	131	118	134	115	120	111
80	80	548	473	115	35	30	130	123	124	116	120	111
82	90	557	476	117	37	36	138	133	140	111	129	111
84	100	528	465	117	23	28	140	120	130	122	129	120
86	110	503	454	115	7	16	128	128	132	120	132	122
88	120	492	437	97	8-	11	123	126	117	115	122	105
90	130	483	464	80	102	41	120	125	117	109	113	107
92	140	468	438	92	17	52	115	117	109	107	103	103
94	150	450	408	69	13	22	109	105	106	100	101	96
96	160	437	390	64	5	10	105	07	95	93	92	84
98	170	430	371	61	2	13	100	92	90	81	91	75
100	180	405	373	55	14	12	90	86	100	71	83	74
102	190	380	350	43	0-	0	80	74	78	62	74	57
104	192	413	348	44	0-	6	80	68	75	60	67	57
106	194	437	363	52	3-	5	89	63	80	58	73	60
108	196	437	361	42	5-	2	82	61	80	54	67	56
110	198	430	364	52	11	4	75	61	73	54	67	56
112	210	370	336	52	35	23	73	53	73	55	66	50
114	220	370	325	52	21	18	84	56	77	52	60	41
116	230	330	310	42	12	12	73	45	69	51	59	41
118	240	344	302	43	7-	2	67	49	66	43	59	39
120	250	338	294	46	0-	1-	64	44	66	43	56	34
122	260	330	295	32	0-	0-	63	44	65	45	59	34
124	270	321	298	34	14-	2-	63	39	65	45	50	35
126	280	386	308	30	3-	3-	68	44	62	37	49	37
128	290	371	304	34	7-	2-	52	34	52	33	39	35
130	300	338	296	30	7-	6-	52	40	49	37	47	32
132	310	335	290	32	8-	1-	52	33	49	33	40	34
134	320	366	290	32	14-	5-	52	30	54	30	47	32
136	330	374	306	40	17-	7-	51	33	54	33	47	39
138	340	338	296	35	10-	2-	51	32	53	39	46	34
140	350	374	293	34	8-	5-	58	44	48	37	44	32
142	360	378	298	37	10-	2-	55	42	56	43	46	39

144	370	356	309	39	5	2-	54	48	59	41	47	39
146	380	354	291	36	4-	2-	58	41	54	46	43	39
148	390	347	296	33	10-	8-	54	46	59	49	43	36
150	400	348	296	21	10-	10-	56	40	48	46	41	33
152	410	360	280	30	17-	10-	50	44	50	43	41	32
154	420	348	286	30	10-	10-	56	48	54	50	46	35
156	430	349	286	30	10-	9-	52	56	54	50	44	36
158	440	342	285	32	12-	10-	59	52	52	46	39	34
160	450	332	273	20	22-	9-	54	50	52	48	44	34
162	460	360	279	18	21-	16-	54	46	50	50	46	39
164	470	366	286	21	28-	15-	61	54	50	49	46	39
166	480	369	291	25	27-	10-	54	48	46	50	46	39
168	490	385	302	18	24-	15-	52	52	48	50	42	37
170	500	386	306	18	20-	15-	56	46	46	47	39	37
172	510	385	302	32	22-	12-	52	52	46	50	32	46
174	520	360	302	14	13-	12-	54	47	46	48	37	37
176	530	355	299	19	12-	13-	55	39	49	46	40	37
178	540	360	297	26	9-	12-	59	46	45	43	34	33
180	550	362	290	37	17-	17-	41	34	37	43	32	33
182	560	416	315	18	24-	17-	34	39	39	32	29	18
184	570	398	324	32	21-	19-	45	33	36	32	32	23
186	580	437	338	52	14-	10-	47	32	47	32	39	32
188	590	433	361	50	19-	20-	56	42	54	48	48	35
190	600	400	347	49	15-	7-	67	59	67	48	54	48
192	610	426	354	56	3-	7-	64	57	73	54	66	49
194	620	432	362	54	8-	3-	71	54	78	59	64	52
196	630	430	368	59	3-	3-	76	62	82	62	73	59
198	640	434	373	66	7-	2-	75	71	78	65	68	63
200	650	437	367	59	3	4	73	63	73	66	68	57
202	660	429	362	65	2	4	73	61	73	68	70	73
204	670	424	367	61	1	4	68	69	76	71	69	66
206	680	428	375	66	4	1-	75	71	82	74	73	67
208	682	479	387	61	7-	5-	76	85	83	75	78	78
210	684	464	393	88	46	34	80	78	82	74	80	71
212	686	531	462	128	53	49	90	86	87	78	88	80
214	688	561	482	142	48	49	107	105	109	95	109	100
216	690	536	474	145	51	46	120	112	109	102	126	105
218	692	448	430	128	60	62	140	129	128	115	129	110
220	694	446	411	128	56	57	126	126	122	114	128	109
222	696	450	412	133	58	54	128	128	124	114	123	116
224	698	443	411	133	66	57	132	126	127	115	128	120
226	700	407	390	129	60	59	133	123	126	115	126	126
228	705	367	377	128	63	69	134	129	140	122	126	118
230	710	352	361	129	63	69	140	129	134	125	132	122
232	720	411	366	122	58	54	134	132	133	122	136	118
234	730	406	369	125	54	60	129	132	134	120	134	115
236	740	389	358	115	56	57	130	126	131	124	133	121
238	750	410	372	11	*	*	133	123	128	121	132	114
240	760	311	350	118	80	69	129	120	133	123	128	115
242	770	283	337	116	88	71	131	120	128	124	130	125
244	780	313	322	117	76	71	130	115	128	120	126	115
246	790	258	291	118	101	80	122	116	126	115	120	115
248	800	234	260	120	110	85	123	112	127	116	123	115
250	820	238	219	120	103	100	130	113	137	120	126	113
254	920	206	151	126	107	104	128	113	132	117	115	113
256	970	194	144	127	108	105	130	110	140	121	123	116
258	1020	186	138	122	113	106	128	113	130	120	127	115
260	1050	170	140	122	105	107	133	115	129	122	126	115
262	1120	167	127	115	112	109	130	112	128	123	126	116
264	1170	157	124	122	107	109	128	113	124	120	122	112

CN	ELAP TIME	2-13 BLEED AIR TEMP DNSTR S-OFF VAL	2-14 BLEED AIR BY PASS TEMP	2-15 AIR TEMP DNSTR MOIST SEP ANTI- ICE VAL	2-16 AIR TEMP DNSTR HOT COLD JUNC	2-17 FWD C/P AIR IN TEMP	2-18 SURF TEMP WINDSH BASE CENT	2-19 SURF TEMP WINDSH BASE LEFT SIDE	2-20 SURF TEMP LEFT CENT WINDSH CENT	2-21 SURF TEMP LEFT CENT WINDSH LEFT SIDE	2-22 SURF TEMP LEFT CENT WINDSH TOP	2-23 SURF TEMP LEFT SIDE WINDSH AFT
266	1210	150	128	113	116	109	126	110	133	121	120	115
268	1270	140	124	121	109	110	130	126	127	126	124	115
270	1300	142	124	121	110	110	136	121	132	126	126	121
272	1340	138	121	126	113	112	140	122	134	130	129	121
274	1400	132	120	114	109	113	*	*	140	133	128	128
276	1470	148	126	125	122	113	142	148	136	128	155	138
278	1520	132	127	117	121	115	154	177	146	131	139	136
280	1620	123	121	117	111	115	199	126	146	130	134	127
282	1670	122	119	118	115	116	130	153	142	128	128	121
284	1720	127	117	116	105	118	136	120	130	128	129	128
286	1770	122	116	115	109	117	140	174	134	131	130	117
288	1800	128	115	116	114	117	143	128	139	135	134	126
290	1850	123	121	114	113	116	146	179	141	135	134	124
292	1910	120	118	115	113	115	140	174	141	134	132	126
294	1970	120	121	117	113	118	144	125	142	134	130	130

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CN	FLAP TIME	2-24 SURF TEMP	2-25 SURF TEMP	2-26 SURF TEMP	2-27 SURF TEMP	2-28 SURF TEMP	2-29 SURF TEMP	3-1 PILOT FOOT TEMP	3-2 PILOT WAIST TEMP	3-3 PILOT WAIST TEMP	3-4 PILOT HEAD TEMP	3-5 STUD FOOT TEMP
56	• X	120	109	111	107	112	102	109	113	113	107	115
58	10	117	113	120	108	109	101	115	115	114	105	112
60	20	120	115	111	107	107	101	115	109	111	107	109
62	30	117	114	115	101	102	100	113	113	113	105	108
64	40	113	118	111	104	102	101	114	105	113	111	102
66	50	111	118	114	101	103	100	112	112	113	109	112
68	60	109	116	118	95	102	107	115	109	91	110	117
70	62	122	109	113	103	104	105	110	115	91	115	107
72	64	115	107	111	105	107	100	114	107	88	108	106
74	66	118	105	113	103	111	105	105	105	88	113	105
76	68	107	113	110	104	104	105	102	107	85	105	109
78	70	111	115	109	103	105	101	101	107	81	102	108
80	80	121	118	110	97	103	101	102	107	80	105	105
82	90	118	111	113	97	95	101	102	105	83	107	102
84	100	116	115	121	100	88	96	101	102	75	114	104
86	110	113	116	118	100	93	91	93	105	81	115	101
88	120	107	104	103	113	100	100	91	101	73	113	107
90	130	95	95	101	110	109	102	88	100	76	114	100
92	140	96	101	107	119	110	115	95	95	100	113	103
94	150	81	87	87	126	118	121	88	91	82	117	97
96	160	69	75	77	130	127	128	86	90	75	125	97
98	170	64	60	67	131	136	131	88	91	73	120	93
100	180	62	57	53	135	142	128	78	91	73	114	100
102	190	51	47	56	140	143	142	86	88	61	120	89
104	192	53	49	56	138	142	138	78	89	69	118	89
106	194	48	49	52	141	146	146	75	88	67	111	88
108	196	59	51	66	140	146	138	81	89	67	116	90
110	198	50	46	50	134	142	135	80	83	67	115	88
112	210	53	48	50	134	146	134	80	88	63	113	86
114	220	50	41	48	130	146	133	73	84	67	113	82
116	230	46	43	54	133	145	138	67	84	57	111	84
118	240	39	37	41	124	140	134	71	74	57	111	82
120	250	37	39	39	128	138	140	61	73	56	113	86
122	260	43	40	46	127	138	137	67	81	55	113	73
124	270	37	41	46	127	140	130	66	73	53	110	78
126	280	39	32	44	121	128	126	73	74	55	113	74
128	290	39	39	44	122	127	127	68	73	50	103	72
130	300	37	32	39	117	123	126	69	86	49	106	68
132	310	44	32	43	115	121	124	60	76	55	107	71
134	320	37	28	32	115	118	118	69	86	52	107	69
136	330	33	32	43	107	122	113	63	71	59	100	63
138	340	46	32	39	107	109	111	76	68	46	101	73
140	350	39	35	44	103	107	114	62	73	49	103	67
142	360	35	34	37	101	108	107	52	68	52	113	56
144	370	46	32	32	109	107	107	47	71	46	116	71
146	380	33	41	33	107	111	107	39	69	43	114	62

148	390	36	39	35	102	108	107	46	67	49	118	65
150	400	33	39	34	95	105	113	34	66	44	118	56
152	410	33	34	33	105	107	105	36	62	48	115	52
154	420	33	37	33	103	100	100	37	66	46	114	59
156	430	32	34	32	89	93	90	48	63	45	114	59
158	440	25	34	32	89	93	90	36	62	45	110	50
160	450	33	32	47	97	88	90	43	63	43	117	50
162	460	24	40	33	86	87	89	32	61	46	126	54
164	470	25	34	34	87	86	87	34	61	46	115	53
166	480	32	30	38	84	86	84	35	61	41	115	48
168	490	16	32	34	82	82	82	33	69	39	121	51
170	500	20	33	33	83	83	73	32	61	39	119	46
172	510	20	33	32	86	76	80	32	63	39	120	42
174	520	21	38	34	75	76	74	33	56	45	111	51
176	530	16	33	35	74	67	63	32	62	34	117	45
178	540	20	27	35	73	67	73	33	59	37	113	46
180	550	25	32	33	69	64	60	32	54	34	105	41
182	560	20	33	28	67	74	73	25	53	37	106	46
184	570	18	19	29	74	68	73	32	61	40	105	47
186	580	35	32	37	54	62	53	43	69	39	103	46
188	590	53	46	52	37	41	46	59	64	42	107	46
190	600	62	59	59	29	34	33	55	44	43	102	48
192	610	67	59	64	33	32	27	55	61	53	105	52
194	620	76	63	64	32	39	25	54	64	51	107	55
196	630	67	66	73	28	33	32	57	64	50	107	54
198	640	71	68	67	26	32	33	64	64	53	100	56
200	650	69	66	67	28	30	25	56	65	43	100	66
202	660	69	69	68	32	25	32	63	73	43	94	60
204	670	68	69	70	18	32	25	63	64	51	91	61
206	680	71	70	73	25	21	28	66	59	49	101	67
208	682	72	75	76	32	20	23	59	73	48	102	56
210	684	74	78	73	28	30	26	78	71	62	94	71
212	686	94	90	90	12	6	9	78	85	70	91	73
214	688	110	109	102	4-	4-	0-	80	89	82	100	73
216	690	118	110	111	4-	7-	12-	86	90	87	98	76
218	692	118	120	122	5-	8-	2-	86	93	74	84	78
220	694	113	117	122	4-	4-	4-	04	97	84	91	85
222	696	115	120	119	0-	7-	8-	98	94	88	100	85
224	698	124	126	117	2-	2-	0-	92	101	80	92	88
226	700	121	122	124	0-	11-	2-	87	100	81	101	90
228	705	121	122	122	6-	4	7-	93	94	82	105	88
230	710	121	123	122	5-	4	7-	88	93	87	105	88
232	720	122	122	118	5	2	6	89	97	86	97	88
234	730	117	120	124	5	1	3	89	99	82	101	89
236	740	120	120	126	5	2	0-	99	94	86	100	93
238	750	116	115	120	*	*	0-	87	*	*	101	88
240	760	117	118	126	6	6	6	88	101	83	105	99
242	770	123	117	126	6	7	8	94	98	87	107	93
244	780	126	119	120	33	31	33	95	553	99	112	88
246	790	115	120	118	80	80	75	102	103	102	108	93
248	800	120	118	122	93	88	86	101	103	105	107	94
250	820	126	117	120	105	109	101	95	113	102	106	95
254	920	120	115	117	108	112	105	102	113	108	107	101
256	970	113	120	122	126	114	107	112	119	109	109	101
258	1020	119	114	115	119	111	116	105	121	105	109	109
260	1050	126	114	117	114	122	110	105	126	107	109	105
262	1120	110	115	118	114	115	115	106	123	107	109	105
264	1170	117	114	120	110	110	110	114	114	111	109	113
266	1210	114	118	115	115	110	109	104	120	112	109	107
268	1270	118	114	120	118	111	109	106	120	111	112	112

CN	ELAP TIME	2-24 SURF TEMP TOP CENT FWD CAN	2-25 SURF TEMP LEFT CENT FWD CAN	2-26 SURF TEMP LEFT ROTT FWD CAN	2-27 SURF TEMP TOP CENT AFT CAN	2-28 SURF TEMP LEFT CENT AFT CAN	2-29 SURF TEMP LEFT ROTT AFT CAN	3-1 PILOT FOOT TEMP	3-2 PILOT WAIST TEMP UNSH	3-3 PILOT WAIST TEMP SH	3-4 PILOT HEAD TEMP	3-5 STUD FOOT TEMP
270	1300 X	120	120	121	119	118	112	113	136	120	114	105
272	1340	113	120	120	122	132	115	107	127	118	109	113
274	1400	115	115	118	122	123	118	114	128	120	113	113
276	1470	120	128	128	132	122	124	113	137	122	110	110
278	1520	127	121	122	136	133	117	124	140	130	117	123
280	1620	114	115	133	134	151	120	115	146	118	114	116
282	1670	120	121	126	117	128	121	115	128	128	112	117
284	1720	115	126	122	134	136	125	115	144	123	111	115
286	1770	115	118	124	142	136	122	114	130	121	116	118
288	1800	126	121	126	134	128	126	117	136	122	117	118
290	1850	120	132	122	122	121	117	181	122	122	110	110
292	1910	116	117	123	125	116	111	114	127	124	111	117
294	1970	122	118	123	120	121	111	119	127	120	113	115

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CN	ELAP TIME	3-6 STUD WAIST TEMP UNSH	3-7 STUD WAIST TEMP SH	3-8 STUD HEAD TEMP	3-10 AMB TEMP AFT ELECT COMP RH	3-11 AMB TEMP AFT ELECT COMP LH	3-12 AMB TEMP AFT ELECT COMP STA	3-13 AMB TEMP FWD ELECT COMP RH	3-14 AMB TEMP FWD ELECT COMP RH	3-15 AMB TEMP FWD ELECT COMP LH	3-16 AMB TEMP FWD ELECT COMP RH	3-17 UTIL PUMP IN OIL TEMP
56	* X	105	107	115	115	107	108	126	146	117	125	101
58	10	101	107	115	113	113	108	129	140	115	126	107
60	20	110	107	109	112	110	102	126	136	120	124	109
62	30	108	108	102	115	113	109	133	138	115	126	114
64	40	109	103	107	110	114	113	127	139	117	127	115
66	50	108	108	109	110	109	109	128	136	117	129	120
68	60	101	100	112	109	107	109	120	140	121	136	122
70	62	98	101	105	105	115	126	116	117	115	127	118
72	64	103	89	103	116	116	109	115	138	115	126	122
74	66	97	87	91	107	117	114	128	131	110	126	120
76	68	96	94	94	120	113	111	116	117	107	121	120
78	70	92	86	96	123	114	126	127	140	113	129	124
80	80	90	91	93	118	122	119	117	128	107	128	128
82	90	97	88	93	117	118	115	131	128	107	125	130
84	100	93	80	88	109	121	115	99	116	105	113	125
86	110	88	80	90	109	107	107	103	112	101	112	120
88	120	91	80	83	94	105	107	88	102	93	95	112
90	130	93	80	92	88	100	101	76	101	94	95	107
92	140	101	93	98	76	84	99	62	101	80	90	101
94	150	88	80	90	80	86	89	49	88	57	81	98
96	160	94	78	86	61	74	92	52	85	56	73	96
98	170	92	78	88	59	69	75	49	76	61	73	88
100	180	87	73	91	63	69	80	52	86	63	80	86
102	190	84	74	90	59	69	75	52	90	69	69	88
104	192	85	73	85	61	74	80	64	90	69	71	85
106	194	86	64	83	53	64	76	58	78	69	68	86
108	196	81	68	82	58	63	78	67	76	63	65	82
110	198	88	73	88	60	73	86	56	76	70	65	80
112	210	84	74	91	57	67	80	54	92	61	66	80
114	220	86	73	86	49	63	73	41	80	54	59	80
116	230	84	67	84	52	66	71	41	76	60	65	73
118	240	80	63	82	53	57	67	39	69	53	66	73
120	250	73	66	83	46	53	56	46	67	55	57	69
122	260	76	66	81	46	50	63	44	56	43	56	71
124	270	76	69	73	43	58	66	32	61	46	59	66
126	280	67	60	82	43	49	62	46	61	42	56	63
128	290	68	57	80	42	54	59	38	63	49	53	59
130	300	70	60	78	39	51	56	51	59	48	56	62
132	310	67	56	76	36	47	54	40	59	35	56	61
134	320	68	58	73	47	52	52	51	51	42	49	61
136	330	69	52	74	42	52	43	42	73	39	46	57
138	340	71	54	73	39	52	54	34	62	47	52	54
140	350	68	60	75	37	52	48	30	49	43	46	56
142	360	67	59	71	32	39	42	37	48	40	49	58
144	370	76	71	82	32	48	48	41	57	48	46	51

146	380	68	60	77	34	46	41	34	43	48	45	50
148	390	66	61	80	37	43	48	37	59	52	48	56
150	400	65	54	74	39	39	48	32	46	46	46	55
152	410	62	52	73	32	33	40	18	40	34	46	52
154	420	56	55	72	34	35	45	32	58	39	39	50
156	430	60	54	86	33	36	37	32	43	38	39	50
158	440	62	49	73	21	25	43	16	48	33	48	46
160	450	63	54	74	27	32	38	18	49	39	32	52
162	460	56	50	67	32	32	34	21	39	37	38	46
164	470	53	52	66	19	28	39	39	32	39	32	49
166	480	56	48	66	16	34	32	32	36	39	32	43
168	490	59	52	73	25	32	39	14	52	27	37	46
170	500	54	43	73	25	20	36	14	47	33	35	42
172	510	53	43	57	14	20	39	28	32	32	33	41
174	520	59	52	56	19	32	32	32	30	34	32	46
176	530	55	49	60	15	28	30	21	37	32	32	44
178	540	53	47	56	18	29	32	28	32	21	35	41
180	550	46	46	58	14	23	37	13	34	39	23	43
182	560	51	46	60	18	16	30	6	18	32	32	46
184	570	50	52	54	26	26	39	42	32	46	34	46
186	580	51	39	52	41	46	43	49	46	60	50	58
188	590	46	41	47	52	52	42	73	46	59	57	63
190	600	49	43	53	55	54	45	64	62	66	65	66
192	610	43	37	56	52	59	47	56	62	66	62	68
194	620	46	46	52	60	66	56	62	53	60	67	71
196	630	48	39	54	62	62	59	63	63	60	69	77
198	640	47	46	53	65	65	59	61	69	63	69	80
200	650	46	42	53	63	66	59	60	63	61	65	75
202	660	52	52	53	57	60	64	73	66	54	65	75
204	670	51	46	52	61	64	57	63	63	59	61	75
206	680	54	52	56	61	66	56	63	85	66	69	80
208	682	54	46	61	59	73	63	61	85	60	67	75
210	684	53	59	66	95	100	88	113	59	101	88	86
212	686	59	62	63	123	126	113	101	100	105	103	105
214	688	61	69	73	130	128	120	102	103	113	100	122
216	690	67	65	69	125	130	120	90	105	101	101	133
218	692	70	75	75	115	128	120	128	115	111	107	127
220	694	69	72	80	126	126	114	115	101	113	120	131
222	696	66	73	78	125	128	118	121	121	117	115	133
224	698	74	63	66	120	120	115	118	120	107	107	136
226	700	69	71	86	125	127	115	115	116	103	114	130
228	705	73	86	86	120	122	120	113	113	104	118	135
230	710	78	75	80	120	122	115	109	112	107	107	131
232	720	77	71	75	120	115	116	108	98	105	115	129
234	730	72	78	80	113	120	115	100	102	97	113	133
236	740	69	86	80	120	120	102	101	93	97	107	131
238	750	76	73	80	117	117	114	112	113	100	113	136
240	760	78	74	88	117	121	120	115	107	101	109	136
242	770	80	82	100	115	122	120	110	102	101	107	138
244	780	91	95	113	113	120	115	108	113	101	108	138
246	790	101	88	107	109	126	114	114	107	100	107	128
248	800	107	88	107	111	175	120	113	115	101	113	144
250	820	100	95	108	111	115	116	167	148	138	117	144
254	920	106	101	112	114	114	115	179	151	145	117	146
256	970	107	105	113	110	113	112	180	153	139	122	146
258	1020	107	105	114	111	120	122	179	150	166	126	147
260	1050	104	104	115	111	111	110	186	148	138	122	145
262	1120	109	108	116	120	113	113	181	157	146	127	144
264	1170	109	113	107	111	118	113	194	173	146	129	142
266	1210	109	107	115	108	113	111	183	173	144	126	141

CN	ELAP TIME	3-6 STUD WAIST TEMP UNSH	3-7 STUD WAIST TEMP SH	3-8 STUD HEAD TEMP	3-10 AMR TEMP AFT FLECT COMP RH	3-11 AMR TEMP AFT FLECT COMP LH	3-12 AMR TEMP AFT FLECT COMP STA	3-13 AMR TEMP FWD FLECT COMP RH	3-14 AMR TEMP FWD FLECT COMP RH	3-15 AMR TEMP FWD FLECT COMP LH	3-16 AMR TEMP FWD FLECT COMP RH	3-17 UTIL PUMP IN OIL TEMP
268	1270	109	108	106	112	177	113	181	155	145	128	141
270	1300	112	111	122	111	114	114	200	163	149	130	138
272	1340	110	112	117	119	111	112	198	178	135	133	138
274	1400	112	110	116	113	120	113	206	174	153	133	138
276	1470	115	113	115	115	144	118	193	181	207	140	138
278	1520	120	117	116	129	120	110	203	173	158	194	138
280	1620	111	124	116	117	117	111	196	174	201	135	136
282	1670	112	118	125	123	•	•	188	173	155	146	136
284	1720	113	116	116	119	126	111	186	171	151	136	135
286	1770	113	112	117	126	113	113	196	170	150	138	134
288	1800	111	119	114	120	118	116	187	167	147	153	134
290	1850	116	115	113	125	114	113	192	173	144	140	134
292	1910	114	120	113	119	120	120	188	170	141	134	132
294	1970	112	114	114	126	115	119	184	174	142	141	136

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CN	ELAP TIME	3-18 UTIL PUMP OUT OIL TEMP	3-19 UTIL RES IN OIL TEMP	3-20 UTIL COOL IN OIL TEMP	3-21 FLT CONT PUMP OIL TEMP	3-22 FLT CONT PUMP OIL TEMP	3-23 FLT CONT RES IN OIL TEMP	3-24 FLT CONT IN OIL TEMP R-RUN CYL	3-25 CONT OUT OIL TEMP R-RUN CYL	3-26 FLT CONT COOL IN OIL TEMP	3-27 SKIN TEMP LEFT AILER DOOR 28
56	*X	111	113	107	107	118	112	109	118	115	120
58	10	120	115	115	107	131	120	120	123	120	120
60	20	128	122	120	107	140	120	120	127	124	120
62	30	130	125	128	115	130	118	133	134	131	118
64	40	140	122	132	118	147	121	142	140	134	120
66	50	141	128	137	120	157	124	146	148	145	115
68	60	141	130	143	122	163	124	144	155	149	117
70	62	150	138	143	122	163	130	154	154	148	116
72	64	142	128	142	124	162	129	151	154	146	118
74	66	144	127	142	118	161	128	149	153	144	114
76	68	149	138	144	122	166	133	151	157	147	115
78	70	153	135	147	122	166	133	151	157	150	118
80	80	153	134	148	122	166	133	151	157	150	120
82	90	157	134	155	128	166	135	148	157	151	120
84	100	158	134	155	128	171	131	148	157	148	107
86	110	157	130	148	125	173	129	150	157	148	93
88	120	154	120	148	122	167	118	146	155	150	80
90	130	144	115	146	118	167	112	144	153	146	71
92	140	142	113	145	117	166	112	138	152	145	61
94	150	137	102	140	111	155	107	136	147	140	49
96	160	133	105	138	107	151	91	128	149	138	39
98	170	128	88	136	105	148	93	129	144	134	34
100	180	120	88	131	103	146	90	120	138	134	28
102	190	118	86	124	93	138	82	115	140	127	20
104	192	118	78	127	96	136	88	117	136	129	22
106	194	117	85	128	99	138	92	115	138	128	23
108	196	115	82	128	94	136	88	111	131	124	23
110	198	115	84	126	88	131	88	113	128	122	25
112	210	109	82	118	86	126	80	105	127	120	18
114	220	101	73	118	86	126	81	101	122	117	16
116	230	100	71	114	84	121	81	95	115	111	18
118	240	100	63	107	80	121	80	93	114	110	14
120	250	100	67	105	78	120	80	90	111	107	12
122	260	96	67	98	73	118	76	88	109	105	11
124	270	93	62	98	71	116	74	86	104	100	12
126	280	93	63	94	64	116	73	86	104	98	11
128	290	88	63	100	66	109	64	92	102	98	11
130	300	86	61	97	67	107	57	87	105	100	9
132	310	88	61	91	64	111	55	86	101	95	14
134	320	86	58	93	66	107	52	84	101	88	9
136	330	89	59	90	64	109	52	80	98	93	7
138	340	82	67	94	59	101	53	84	100	88	6
140	350	83	61	90	65	105	52	80	94	87	6
142	360	86	57	92	57	107	58	80	94	93	4
144	370	86	66	95	61	108	54	81	95	95	1

146	380	86	59	88	60	105	59	85	93	96	3-
148	390	84	56	94	57	106	60	78	95	90	5-
150	400	86	60	96	59	109	64	84	98	90	3-
152	410	86	66	92	54	107	61	81	95	92	2-
154	420	84	56	90	50	103	60	77	90	86	8-
156	430	81	56	92	46	107	54	80	88	90	3-
158	440	86	53	92	47	104	54	81	86	90	9-
160	450	78	56	86	53	100	67	74	90	86	2-
162	460	82	59	88	48	98	66	71	90	82	5-
164	470	80	52	86	49	100	56	76	82	87	10-
166	480	81	48	88	46	98	59	71	89	81	9-
168	490	80	52	87	47	101	55	71	88	81	6-
170	500	79	47	84	46	98	59	71	90	78	5-
172	510	81	42	89	41	104	54	75	86	84	9-
174	520	76	50	86	41	102	54	76	86	80	6-
176	530	78	52	82	50	100	57	74	84	85	11-
178	540	80	46	84	47	94	58	68	90	80	9-
180	550	81	53	82	48	101	54	71	82	82	8-
182	560	83	48	85	46	101	50	71	89	85	12-
184	570	78	55	87	43	101	46	68	87	80	3-
186	580	80	67	86	53	101	65	76	80	82	34
188	590	92	67	90	58	105	64	84	82	86	43
190	600	95	69	88	60	111	76	87	88	86	46
192	610	100	75	94	64	117	80	93	87	88	50
194	620	102	82	100	66	114	78	97	95	93	52
196	630	100	75	98	71	122	80	100	91	97	57
198	640	107	86	101	71	124	85	100	100	100	53
200	650	107	84	102	75	129	85	100	98	57	53
202	660	111	84	108	76	126	82	103	102	104	58
204	670	109	86	107	80	122	84	102	105	105	58
206	680	107	83	105	80	130	90	108	107	100	53
208	682	110	90	109	80	133	89	105	115	107	53
210	684	117	115	116	85	132	101	109	114	110	87
212	686	128	140	134	101	143	131	128	126	133	133
214	688	150	144	140	111	156	140	144	138	141	140
216	690	156	146	150	118	166	140	154	151	143	136
218	692	155	136	151	124	167	136	153	148	140	130
220	694	157	138	154	128	173	144	160	153	146	128
222	696	162	146	153	126	173	144	160	161	153	124
224	698	164	134	151	133	176	135	154	161	154	130
226	700	157	142	153	126	173	140	161	157	151	120
228	705	157	140	153	131	175	138	161	164	153	118
230	710	157	135	155	131	175	134	165	157	154	122
232	720	153	146	153	128	177	138	165	159	149	123
234	730	153	136	157	131	175	133	159	157	151	120
236	740	160	153	151	131	177	135	161	164	153	113
238	750	155	148	151	137	177	135	161	164	153	113
240	760	155	141	150	140	161	142	162	157	159	118
242	770	157	144	159	138	170	142	160	166	159	115
244	780	159	140	162	135	170	134	164	166	159	115
246	790	161	133	153	135	175	140	167	168	166	113
248	800	157	136	159	139	177	144	169	171	167	115
250	820	149	133	148	145	161	138	167	171	163	120
252	920	137	123	135	149	147	131	176	180	142	122
254	970	132	123	130	149	142	128	182	184	136	121
256	1020	129	122	127	151	146	126	183	192	134	122
258	1040	127	122	124	147	143	125	186	187	130	122
260	1120	124	118	122	149	143	124	185	187	128	122
262	1170	123	120	119	147	120	124	186	187	126	121
264	1210	120	117	120	148	126	127	183	184	123	120

CN	FLAP TIME	3-18 UTIL PUMP OUT OIL TEMP	3-19 UTIL RES IN OIL TEMP	3-20 UTIL COOL IN OIL TEMP	3-21 FLT CONT PUMP IN OIL TEMP	3-22 FLT CONT PUMP OUT OIL TEMP	3-23 FLT CONT RES IN OIL TEMP	3-24 FLT CONT IN OIL TEMP R-RUD CYL	3-25 FLT CONT OUT OIL TEMP R-RUD CYL	3-26 FLT CONT COOL IN OIL TEMP	3-27 SKIN TEMP LEFT AILER DOOR 28
268	1270	118	116	115	146	129	122	182	182	126	121
270	1300	117	124	116	146	123	122	181	180	122	120
272	1340	117	117	115	144	122	126	177	179	122	120
274	1400	118	118	114	144	122	121	175	175	121	122
276	1470	116	111	114	143	122	120	173	173	122	122
278	1520	114	120	113	144	121	122	171	171	122	122
280	1620	115	117	113	142	122	122	170	169	121	122
282	1670	113	115	113	142	121	122	167	168	122	120
284	1720	114	113	114	144	122	124	166	167	123	121
286	1770	113	117	112	142	122	124	163	165	122	118
288	1800	113	117	111	145	122	124	161	161	122	118
290	1850	113	119	111	141	122	124	161	159	122	118
292	1910	111	113	112	140	122	124	159	159	124	118
294	1970	111	119	113	140	123	124	157	157	122	116

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CN	ELAP TIME	3-28 AMB TEMP LEFT AILER ACT	3-29 CASE TEMP LEFT AILER ACT	5-5 FUEL TEMP A/R FLOW METER	5-6 FRAME TEMP VOLT REG	5-7 SURF TEMP STAR ACT BEAR	5-8 AIR TEMP PRESS UTIL HYD RES	5-9 RATT COMP AMB TEMP	5-10 RATT TERM TEMP	5-11 AFT C/P IN TEMP	5-13 BOT SEAT REM TEMP
56	•X	122	128	104	102	105	107	128	120	91	104
58	10	124	129	121	104	105	109	127	118	75	105
60	20	122	126	133	108	109	107	134	118	81	105
62	30	122	128	155	105	111	107	130	118	88	103
64	40	124	127	181	102	111	107	126	117	86	105
66	50	125	131	211	105	117	109	122	117	87	105
68	60	129	129	127	108	120	109	126	118	43	102
70	62	128	134	125	102	123	115	128	118	43	102
72	64	125	135	122	107	122	107	125	115	41	102
74	66	128	126	118	107	123	113	121	118	46	102
76	68	127	127	120	102	118	105	122	118	41	102
78	70	128	127	128	105	123	109	129	120	48	102
80	80	128	131	133	113	120	114	127	115	48	102
82	90	129	128	151	112	122	114	124	118	39	100
84	100	125	125	163	110	122	117	125	115	39	98
86	110	128	117	169	109	125	120	113	107	20	98
88	120	123	105	168	100	123	115	103	102	12	95
90	130	120	101	173	100	122	110	102	93	88	97
92	140	115	88	168	94	120	107	88	90	52	95
94	150	114	85	171	88	118	101	86	85	46	93
96	160	107	80	168	88	120	91	88	75	39	91
98	170	105	73	166	80	120	87	73	71	37	95
100	180	105	60	163	81	120	83	63	69	46	91
102	190	99	63	138	71	120	80	71	64	32	92
104	192	97	63	131	74	120	78	61	66	32	90
106	194	93	58	133	73	118	82	71	65	32	92
108	196	91	60	128	69	121	80	64	64	23	93
110	198	93	64	128	69	122	74	59	60	23	91
112	210	86	59	143	64	118	73	69	63	39	92
114	220	84	56	145	60	118	62	56	57	37	86
116	230	80	46	140	57	118	60	56	60	39	87
118	240	78	46	138	63	113	54	57	56	32	90
120	250	74	37	140	53	111	52	48	50	28	84
122	260	70	46	133	53	112	42	50	53	32	89
124	270	67	34	134	48	110	48	51	48	25	86
126	280	71	40	131	57	108	40	48	48	13	82
128	290	66	33	126	50	105	39	52	46	22	81
130	300	63	46	124	49	107	34	43	50	21	84
132	310	59	39	122	49	104	36	43	48	20	78
134	320	62	32	129	46	101	46	46	46	14	81
136	330	57	42	126	41	102	42	41	46	19	80
138	340	57	41	127	46	95	33	43	40	16	74
140	350	54	39	125	46	97	39	46	41	20	76
142	360	50	35	127	46	98	32	39	41	18	73
144	370	51	34	134	39	95	32	51	39	18	80

146	380	50	27	133	46	97	34	36	41	18	80
148	390	46	32	133	33	93	32	34	34	18	76
150	400	46	25	134	43	97	39	33	33	10	71
152	410	48	34	127	37	91	34	39	37	15	76
154	420	40	25	124	34	88	37	39	34	14	73
156	430	39	24	127	33	90	33	32	34	7	67
158	440	43	23	124	37	84	40	34	32	20	71
160	450	34	16	124	32	86	32	31	32	11	70
162	460	39	16	123	34	83	37	35	32	7	64
164	470	37	32	121	32	81	35	32	32	7	65
166	480	39	13	120	33	78	37	25	32	2	61
168	490	32	20	118	34	78	39	21	30	11	64
170	500	32	18	120	32	76	32	32	28	14	61
172	510	33	15	118	33	74	33	25	30	5	64
174	520	42	27	114	30	75	34	26	27	6	61
176	530	46	5	121	25	74	29	19	25	12	59
178	540	32	20	122	19	78	26	37	23	12	60
180	550	33	16	120	20	74	32	23	26	5	58
182	560	32	21	118	32	75	34	31	23	6	56
184	570	30	21	124	28	75	32	32	28	8	52
186	580	32	39	124	32	73	35	49	37	18	57
188	590	34	35	127	33	71	43	43	49	7	55
190	600	34	54	121	37	71	46	59	48	16	56
192	610	41	53	126	39	71	52	61	52	20	52
194	620	39	56	124	53	73	51	63	59	15	53
196	630	47	53	124	56	74	5	57	61	12	50
198	640	49	63	128	47	68	63	61	59	23	52
200	650	52	62	126	49	75	61	53	60	26	48
202	660	47	59	128	59	68	61	70	59	18	54
204	670	52	71	131	59	68	64	69	61	16	52
206	680	53	71	133	59	73	63	71	65	32	48
208	690	60	67	128	60	71	61	58	61	16	48
210	694	63	83	133	69	78	64	95	71	42	48
212	686	71	110	147	100	78	88	96	88	62	54
214	688	75	124	169	116	86	112	97	88	62	52
216	690	87	130	184	117	87	130	100	87	49	52
218	692	84	129	183	113	88	130	113	100	66	61
220	694	95	133	190	118	95	128	110	94	61	61
222	696	98	127	188	112	95	135	120	99	61	60
224	698	95	123	186	122	91	128	115	107	56	57
226	700	98	125	191	115	93	134	109	102	68	57
228	705	98	128	194	114	96	133	115	101	74	59
230	710	100	122	197	118	98	136	117	100	61	54
232	720	101	125	192	114	99	136	115	102	60	61
234	730	104	125	197	113	100	130	111	100	57	59
236	740	103	118	199	112	98	135	105	100	53	58
238	750	107	122	192	113	100	130	105	99	66	60
240	760	105	118	194	112	101	134	103	98	74	59
242	770	107	117	193	115	104	140	109	100	76	61
244	780	105	120	197	114	107	136	113	100	86	68
246	790	114	111	211	113	109	129	107	95	93	76
248	800	115	118	231	115	115	128	112	95	97	75
250	820	120	122	244	111	122	120	126	94	101	76
252	870	7	126	224	107	127	115	125	95	97	78
254	920	122	126	218	108	131	120	136	96	105	84
256	970	122	121	204	109	134	115	133	99	104	88
258	1020	122	121	192	109	134	115	145	101	105	90
260	1050	123	121	184	109	134	118	135	101	101	95
262	1120	122	122	175	108	133	115	140	104	97	100
264	1170	122	126	169	108	133	111	142	104	103	100

CN	ELAP TIME	3-28 AMB TEMP LEFT AILER ACT	3-29 CASE TEMP LEFT AILER ACT	5-5 FUEL TEMP A/R FLOW METER	5-6 FRAME TEMP VOLT REG	5-7 SURF TEMP STAB ACT REAR	5-8 AIR TEMP PRESS UTIL SYN HYD RES	5-9 BATT COMP AMB TEMP	5-10 BATT TEMP TEMP	5-11 AFT C/P IN TEMP	5-13 BOTT SEAT REM TEMP
266	1210	122	122	164	109	134	120	141	106	99	101
268	1270	122	122	169	109	133	111	142	108	103	105
270	1300	122	126	161	109	132	120	148	109	99	103
272	1340	123	122	156	111	133	118	142	109	106	105
274	1400	125	122	153	109	132	111	154	113	104	106
276	1470	124	120	157	110	132	126	152	113	114	106
278	1520	124	129	151	109	130	120	166	114	112	107
280	1620	122	128	150	110	132	113	159	115	105	108
282	1670	125	125	148	111	132	115	166	115	111	109
284	1720	124	119	148	111	131	112	154	116	120	111
286	1770	122	126	146	111	128	114	150	117	107	110
288	1800	124	120	146	111	130	115	155	117	113	111
290	1850	122	121	144	112	130	110	157	120	111	111
292	1910	122	118	144	111	129	115	148	118	115	111
294	1970	121	119	142	111	128	114	153	119	115	113

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CN	ELAP TIME	5-14 MID SEAT REM TEMP	5-15 TOP SEAT REM TEMP	5-16 CAN REM TEMP	5-17 AMB CAN REM TEMP	5-18 AMB CAN REM TEMP	5-22 AC COOL AIR TEMP	5-23 AC COOL OUT TEMP	5-24 AMB AIR TEMP	5-25 AC ALT FRAME TEMP	5-26 AFT C/P TOTAL AIR TEMP
56	• X	107	110	105	107	105	111	135	122	109	101
58	10	105	108	105	105	105	130	136	126	122	88
60	20	113	108	105	106	110	134	142	140	132	83
62	30	107	109	102	107	105	143	154	147	135	92
64	40	113	113	107	109	108	150	166	148	144	84
66	50	110	110	105	108	105	155	164	154	148	88
68	60	105	112	102	111	108	138	115	136	138	56
70	62	107	105	103	101	98	143	123	122	135	54
72	64	110	105	101	101	109	125	138	131	135	49
74	66	104	107	105	103	103	123	142	130	138	40
76	68	113	107	103	99	107	129	146	134	131	46
78	70	95	105	104	104	99	132	149	142	135	46
80	80	103	108	103	103	101	128	143	136	134	47
82	90	100	101	102	91	101	119	131	131	130	46
84	100	97	108	101	95	101	100	118	122	118	32
86	110	94	101	104	101	101	83	104	115	108	27
88	120	96	105	102	93	90	66	88	105	93	21
90	130	97	109	100	93	100	56	76	100	82	73
92	140	88	100	100	95	100	42	69	86	73	66
94	150	90	107	99	90	90	32	59	80	67	37
96	160	96	102	100	87	84	23	52	73	53	37
98	170	88	108	98	86	91	22	47	62	50	20
100	180	89	100	95	78	83	17	44	50	43	30
102	190	83	98	98	82	81	21	39	45	39	27
104	192	88	101	97	76	81	21	37	47	44	14
106	194	88	102	97	73	85	13	51	59	41	18
108	196	86	101	98	75	80	40	46	52	41	14
110	198	88	101	94	80	80	32	48	61	41	18
112	210	89	102	94	86	82	18	41	49	39	32
114	220	86	105	93	74	84	18	35	41	39	34
116	230	89	100	91	76	80	15	34	42	34	25
118	240	84	95	91	68	78	9	33	43	32	20
120	250	86	97	91	67	80	14	32	37	32	18
122	260	80	94	94	61	70	14	32	34	30	7
124	270	80	101	93	66	68	14	33	32	25	18
126	280	73	98	93	60	63	21	32	35	30	11
128	290	71	99	92	62	64	21	33	39	28	7
130	300	78	91	94	56	60	32	32	34	27	12
132	310	73	95	88	60	61	21	32	32	32	16
134	320	74	94	92	58	62	21	32	32	29	14
136	330	73	84	89	54	60	21	33	46	24	2
138	340	71	95	86	59	60	19	32	40	26	4
140	350	64	100	85	53	54	7	33	39	25	7
142	360	68	89	84	52	54	0-	32	34	23	10
144	370	76	87	88	46	46	4-	32	41	23	0-
146	380	74	100	92	50	51	4	21	27	19	23

148	390	70	90	90	50	46	6	25	34	21	7
150	400	70	83	87	43	49	7	25	33	18	4
152	410	69	96	90	46	52	4	25	32	18	0-
154	420	70	93	89	43	51	11	21	32	19	9
156	430	69	89	87	41	47	3	32	25	21	2-
158	440	72	88	81	45	41	6	27	21	22	4
160	450	60	90	80	43	40	1-	23	31	18	1-
162	460	66	96	86	40	46	4-	21	32	20	2-
164	470	63	86	84	39	42	2	14	26	16	1-
166	480	61	82	83	39	39	2-	20	18	16	3-
168	490	67	83	80	39	39	5	18	28	16	0-
170	500	59	82	78	39	47	4	14	32	13	7-
172	510	55	100	74	39	32	5	32	21	18	2
174	520	56	88	75	38	37	1-	18	32	18	1-
176	530	57	81	78	32	40	7	22	27	18	7-
178	540	55	82	74	35	35	4	25	28	18	1-
180	550	56	82	73	29	39	1-	19	30	13	0-
182	560	54	75	71	25	32	3	19	32	16	9-
184	570	58	76	71	32	32	76	53	43	25	8-
186	580	52	74	74	37	34	67	71	65	56	0-
188	590	47	73	73	34	37	73	67	73	61	7-
190	600	48	67	68	43	41	73	71	63	67	2
192	610	48	73	71	39	37	78	69	74	71	6
194	620	52	73	64	43	42	73	80	73	68	14
196	630	52	73	64	42	43	73	80	69	67	14
198	640	52	69	71	42	43	63	78	82	73	7
200	650	46	71	67	46	43	68	79	78	71	11
202	660	51	61	67	59	43	66	78	76	73	12
204	670	52	61	67	67	48	67	78	81	74	14
206	680	49	73	66	46	43	66	75	81	73	82
208	682	54	71	65	46	45	73	71	80	68	2
210	684	48	67	61	54	54	164	140	124	113	42
212	686	58	65	66	65	59	167	168	161	154	58
214	688	61	69	61	73	67	161	167	167	157	60
216	690	59	69	67	73	73	126	142	148	151	54
218	692	64	75	68	89	69	138	142	141	148	61
220	694	72	68	64	78	69	139	144	143	153	74
222	696	70	70	61	86	73	131	148	154	151	57
224	698	53	57	60	80	73	128	135	138	156	59
226	700	67	69	67	88	69	118	140	148	149	71
228	705	74	71	67	100	73	120	136	147	146	73
230	710	66	68	67	93	71	132	169	150	148	69
232	720	77	76	68	87	70	151	173	156	147	61
234	730	69	74	61	84	70	138	168	166	164	68
236	740	61	71	68	92	73	153	179	164	157	56
238	750	68	69	66	84	69	126	167	161	162	67
240	760	73	73	67	82	71	151	180	171	161	69
242	770	68	73	67	88	73	160	177	173	163	88
244	780	82	83	88	108	109	171	187	176	169	83
246	790	94	91	88	109	107	181	187	180	176	87
248	800	95	101	92	112	109	186	187	181	177	90
250	820	88	100	93	113	107	186	187	181	177	90
252	870	92	95	96	105	107	134	192	162	181	100
254	920	100	100	99	112	109	134	179	156	174	99
256	970	101	101	103	113	107	123	173	153	173	104
258	1020	100	101	104	112	113	127	171	150	168	104
260	1050	103	107	107	110	116	122	167	151	165	107
262	1120	100	105	108	115	109	128	163	142	157	105
264	1170	102	107	107	112	112	124	157	135	153	103
266	1210	107	105	109	107	109	115	154	140	152	109

CN	ELAP TIME	5-14 MID SEAT REM TEMP	5-15 TOP SEAT REM TEMP	5-16 CAN PFM TEMP	5-17 AMR CAN REM TEMP	5-18 AMR CAN PFM TEMP ROTT	5-22 AC ALT COOL AIR IN TEMP	5-23 AC ALT COOL AIR OUT TEMP	5-24 AMR AIR TEMP ALT	5-25 AC ALT FRAME TEMP	5-26 AFT C/P TOTAL AIR TEMP
268	1270	107	109	111	110	109	123	162	136	153	111
270	1300	109	109	117	118	115	132	154	130	149	113
272	1340	107	113	120	114	116	136	159	141	148	118
274	1400	109	115	120	112	111	126	147	139	148	117
276	1470	117	113	125	115	117	136	148	132	144	127
278	1520	117	114	124	120	126	131	155	142	144	121
280	1620	113	115	127	115	118	126	•	•	142	142
282	1670	116	116	124	116	117	134	146	137	142	122
284	1720	113	117	132	126	114	136	142	128	142	114
286	1770	115	116	126	126	117	•	146	134	140	128
288	1800	113	118	129	121	123	124	146	127	138	122
290	1850	113	111	126	115	110	130	140	128	138	129
292	1910	110	113	125	113	112	126	138	136	138	124
294	1970	113	120	126	126	115	127	143	133	135	126

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